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Can broken trust be repaired? A social and neuropsychological perspective

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Chapter 1

General Introduction

Trust is a ubiquitous part of social life. In this regard, it is not surprising that the issue of trust has been on the forefront of research agendas across a variety of disciplines in social sciences including psychology, sociology, organizational behavior, economics, and law (e.g., see Dirks, Lewicki, & Zaheer, 2009; Rousseau, Sitkin, Burt, & Camerer, 1998; Tyler & Huo, 2002). This multidisciplinary approach highlights that trust is among the most important aspects of human social life, as it pervades almost all domains of society (De Cremer & Desmet, 2012; Rield & Javor, 2012). In fact, almost any decision or exchange that a person engages in includes some sort of trust evaluation, which emphasizes the notion that trust represents a necessary ingredient to coordinate and facilitate social life (Bohnet & Croson, 2004; Mayer, Davis, & Schoorman, 2007).

Across these disciplines a wide range of trust definitions exists, but a common understanding has grown that "trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau et al., 1998, p 395). The presence of trust has been shown to offer numerous benefits to individuals, organizations, and even society as a whole. At the level of the individual trust has, for instance, been linked to love and happiness in close relationships (Rempel, Holmes, & Zanna, 1985). Trust has also been identified as a trademark of effective organizations as it fosters cooperation and increases performance (Bromiley & Cummings, 1996; Chiles & McMackin, 1996; Dirks, 2000; Dirks & Ferrin, 2001, 2002). Moreover, according to sociologists trust is a key component of social capital, which in turn is important for social integration,

economic efficiency, and democratic stability (Coleman, 1998; Fukuyama, 1995; Newton, 2001). These findings underscore the notion that trust is an essential ingredient of social life.

The violation of trust

A common theme of most prior trust studies is that they primarily focus on understanding what happens when trust is present. It is noteworthy, however, that despite the importance of trust, it has been relatively silent on what happens when trust is violated and has to be restored again (Hardin, 2004). Indeed, hardly any scientific attention has been devoted to understand the moving from a state of distrust to a state of regained trust (De Cremer & Desmet, 2012). This conclusion is regretful, particularly because trust is fragile and people's everyday actions and decisions offer numerous opportunities to violate trust (see Bottom, Daniels, Gibson, & Murnighan, 2002; Kim, Dirks, Cooper, & Ferrin, 2006; Kim, Ferrin, Cooper, & Dirks, 2004; Schweitzer, Hershey, & Bradlow, 2006). Such violations emerge when the victim's positive expectations about the transgressor are disconfirmed, like in cases of romantic betrayal or when a friend does not repay a loan.

Prior research has indicated that the negative consequences of trust violations are detrimental. The violation of trust, for instance, results in an immediate decline of cooperation (Bottom et al., 2002; Haden & Hojjat, 2006). Moreover, in the aftermath of a trust violation victims will often actively seek revenge (Bies & Tripp, 1996). Trust breaches can also poison relationships with suspicion and distrust, which has adverse effects for the relation in the long run (Elangovan, Auer-Rizzi, & Szabo, 2007). These negative consequences highlight that it is crucial to develop a better understanding of the psychology of trust repair (Kramer & Lewicki, 2010). So, the central question that comes up here is: If and how can broken trust be repaired?

The repair of broken trust

The strong emphasis on the presence and benefits of trust has led scholars to leave the issue of violated trust and, more importantly, the question how broken trust can be repaired remained in an empirical shade (De Cremer & Desmet, 2012). In light of the different strategies that transgressors can employ in order to enhance victims' trust, a central distinction has been made between verbal trust repair actions and non-verbal (tangible) trust repair actions.

Most prior trust repair studies largely focused on verbal accounts such as apologies, denials, and excuses (Ferrin, Kim, Cooper, & Dirks, 2007; Kim et al., 2004, 2006; Schweitzer at al., 2006). Ample research has shown that offering a sincere apology might indeed be an effective strategy to enhance trust (e.g., see Ohbuchi, Kameda, & Agarie, 1989; Schwartz, 1978; Tomlinson, Dineen, & Lewicki, 2004). Specifically, these studies found that transgressors who apologized were rated more favorably than transgressors who did not apologize. However, evidence is growing that apologies do not always facilitate the repair of trust (De Cremer & Desmet, 2012). Indeed, researchers have found that apologies may fail to ameliorate the negative consequences of a trust violation because they involve an acknowledgement of guilt (see Riordan, Marlin, & Kellogg, 1983; Schlenker, 1980). In this vein, Sigal, Hsu, Foodim, and Betman (1988) found that a denial of misconduct is a more effective strategy to obtain votes for a political candidate than the provision of an apology. Similarly, Kim and colleagues (2004, 2006) reported that when a trust violation reflects a lack of integrity, attributing blame to external factors by offering an excuse or a denial generates the best outcomes. Empirical research has shown that apologies can even backfire and lead to a further decline of trust (Skarlicki, Folger, & Gee, 2004). It can thus be concluded that prior research regarding the effectiveness of verbal trust repair strategies reached contradictory conclusions.

Given that there is nothing tangible to lend credibility to such verbal response strategies, scholars have argued that they may be discounted by victims as "cheap talk" (Bottom et al., 2002), and this should especially be the case when the trust violation results in monetary loss for the victim, which are not addressed by verbal responses. In such situations, actions may speak louder than words. Accordingly, when a trust breach results in some sort of monetary loss for the victim a non-verbal response, such as the offer of a monetary reimbursement, may be necessary to validate and strengthen the claim that the perpetrator will behave trustworthy in the future (Dirks, Kim, Ferrin, & Cooper, 2011).

Trust repair: The effectiveness of financial compensation

The most prominent non-verbal (tangible) response is the provision of a financial compensation. Monetary compensation is an often used restoration response that is manifested in various policies ranging from worker compensation to the court-based tort system. Previous research has indicated that financial compensation can be an effective tool for restoring a victim's trust (see Bottom et al., 2002; Desmet, De Cremer, & Van Dijk, 2010, 2011). Importantly, most prior compensation studies only explored compensations that are smaller than or equivalent to the damage suffered by the victim. However, scholars have argued that effective trust repair may ask more from the transgressor than just exactly restoring the damage (Kim et al., 2006). In other words, to fully repair trust to its pre-transgressive state it may be necessary that the transgressor goes the extra mile by providing the victim additional compensation. In real-life transgressors often offer victims a compensation that is larger than the damage suffered, which is generally referred to as *over*compensation. Overcompensation, for example, occurs when insurance companies overpay material losses or when stores provide additional compensation that goes beyond mere failure restoration. Because overcompensation

literally entails extra costs for the provider of the compensation, the question arises whether overcompensation is more effective to repair broken trust than compensation that exactly covers the inflicted harm (i.e., equal compensation).

This question was the ground for **Chapter 2**. In this chapter we started from the assumption that overcompensation represents an interesting case in terms of the "paradigmatic struggle" between economics and psychology. More specifically, from an economic perspective overcompensation represents the best situation for the victim because of the high profits it entails, whereas from a psychological perspective overcompensation installs inequality as it violates fairness concerns. We conducted four studies in order to investigate whether overcompensation is more effective (as predicted from a self-interest account) or less effective (as predicted from a fairness account) than equal compensation.

In **Chapter 3** we investigated if the effectiveness of overcompensation as a way to make up for a financial transgression depends on the role of the actor. Importantly, all previous compensation studies merely focused on the target of the compensation, thereby overlooking the potential positive influences that overcompensation may have on non-involved observing parties. Indeed, transgressors often offer victims an overcompensation, not only to repair their relationship with the victim but also to positively influence others. Therefore, in the present chapter we examined whether overcompensation is indeed seen as positive through the eyes of observers.

Subsequently, in **Chapter 4** we examined the role of violation type. Trust violations can often be ascribed to either a lack of competence or a lack of integrity on part of the transgressor (see Kim et al., 2004, 2006). Competence violations occur when the transgressor violates positive expectations about his or her technical and interpersonal skills required to perform a certain task. Integrity violations, on the other hand, arise when the transgressor adheres to a set of moral principles that are

considered as unacceptable by others. Here, we conducted two studies in which we investigated whether the effectiveness of overcompensation changes in function of the violation type. We predicted that after a severe transgression in terms of an integrity violation overcompensation might be needed more in order for trust repair to occur.

In **Chapter 5** we next investigated, in consumer settings, how the magnitude of an overcompensation influences its effectiveness. We predicted that the relationship between overcompensation and customer loyalty is generally characterized by an inverted U-shaped function: As the level of overcompensation increases, customer loyalty also improves, but only to a certain point beyond which an increase in overcompensation generates a drop in customer loyalty. Furthermore, in this study we also aimed to identify the optimal compensation level that results in the highest level of recovery. Although we expect that the curve between overcompensation and customer loyalty is inverted U-shaped, it is possible that there are individual differences in how customers respond to various overcompensation levels. Therefore, in this chapter we have also explored if there are individual differences in how customers respond to different levels of overcompensation.

In **Chapter 6** we subsequently focused on the effectiveness of overcompensation as an advertisement strategy. In this context, promising customers to pay them more than the difference when another store sells the exact same item for a lower price is a commonly employed advertisement strategy by companies (i.e., a price-beating guarantee, cf. overcompensation). In a first study we examined if marketers and shop owners believe that beating price differences is an effective advertisement strategy and compensation policy. In four subsequent studies we investigated whether the announcement of a price-beating refund is indeed an effective strategy to attract new and retain existing customers.

Trust repair: The effectiveness of apologies

In Chapters 2 through 6 we focused on the effectiveness of financial (over)compensation as a means to enhance trust (and other trust-related outcomes) after a tangible trust violation. However, in the literature it is increasingly acknowledged that even in cases of tangible harm, non-financial motives are also important (Curhan, Elfenbein, & Xu, 2006; De Cremer, 2002; Lax & Sebenius, 1986). In this respect, trust breaches do not only violate tangible concerns, but often also constitute a violation of relational concerns (Bies & Moag, 1986). This notion suggests that trust repair may also be facilitated by verbal repair strategies that address relational harm. One prominent way in which transgressors can appeal to these relational concerns is by offering an apology to the victim (Lazare, 2004; Kim, Dirks, & Cooper, 2009). Apologies address the harmed relational needs of the victim because they restore the victim's dignity and affirm respect for the victim (Barclay & Skarlicki, 2008; Scher & Darley, 1997).

In **Chapter 7** we started from the observation that although prior research has revealed that financial compensations and apologies can be effective to enhance broken trust, research to date has neglected to study the effects of financial *and* relational strategies on trust repair simultaneously (for a notable exception, see Okimoto & Tyler, 2007). Therefore, we conducted two studies in which we focused on the combined effects of financial compensations and apologies. Specifically, we examined whether in the aftermath of a tangible harm an apology offers an additional value in enhancing trust on top of the impact of a monetary compensation.

In **Chapter 8** we switched our focus to investigating the effectiveness of apologies in relationships at work. More specifically, we examined the impact of decision timing on the effectiveness of leaders' apologies to repair followers' trust in the aftermath of leader failure. On almost a daily basis leaders have to make decisions that can harm their followers in cases of incorrect decisions. However, no

previous studies investigated how the timing of an incorrect decision influences the effectiveness of apologies as a trust repair strategy. In five studies we investigated how a negative decision outcome generated by a leader in a hasty, timely, or delayed manner impacts upon the need for and the effectiveness of apologies to repair followers' trust.

A neuropsychological perspective on trust repair

In the previous chapters of this dissertation the trust repair process was investigated using behavioral methods. Importantly, the neurosciences offer new tools and an anatomical guide for further exploring the process of trust repair. Indeed, information about the nature of connectivity among neural systems can serve as a useful complement to behavioral methods for advancing theories of social behavior (Amodio, 2010; Kosfeld, 2007). Important in this regard is the observation that prior neuroimaging research has revealed that the human brain has evolved mechanisms that are capable of evaluating the trustworthiness of others without conscious deliberation (see Burnham, McCabe, & Smith, 2000; Todorov, 2011; Todorov, Pakrashi, & Oosterhof, 2009; Winston, Strange, O'Doherty, & Dolan, 2002). Because trust seems to take place in the brain, it is surprising to see that the issue of trust repair has not yet been studied by means of looking into the brain.

To address this lacuna in the literature, in **Chapter 9** we conducted an fMRI (functional magnetic resonance imaging) study in which we investigated the neural correlates of trust repair through equal financial compensation. By doing so, we are the first to look at the trust repair process from a neuroscientific perspective. We predicted that trust repair by equal compensation would activate brain areas that have previously been associated with forgiveness and social reward experiences, and that these activations would mediate the link between compensation and trust repair.

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Chapter 2

What Money Can't Buy: The Psychology of Financial Overcompensation

Abstract

When a financial damage has been inflicted, perpetrators can satisfy victims' outcome related concerns by providing a financial compensation. Few studies have investigated, however, whether *overcompensation* (i.e., compensation that is greater than the damage suffered) is more beneficial than *equal compensation* (i.e., compensation that covers the exact damage suffered). The results of four studies show that overcompensation offers no effects in addition to the impact of equal compensation, and that it even provokes negative outcomes. More specifically, overcompensation is attributed to occur because of a lower level of moral orientation (Studies 2 through 4), leads to less favorable perceptions of the perpetrator (Studies 2 and 4), and lower levels of trust in the perpetrator (Studies 3 and 4) than equal compensation. No significant differences between overcompensation and equal compensation appeared for relationship preservation and cooperation (Study 4). These results show that while overcompensation may rebuild cooperation (albeit not more effectively than equal compensation), it does so at a monetary and relational cost that limits its effectiveness as a tool to promote true interpersonal trust. The present studies thus show that a large financial compensation does not provide any surplus value in terms of psychological outcomes and relationship continuation, even though such compensation best satisfies a victim's economic needs.

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Introduction

After a financial damage has been inflicted, like in case of a damaged property or an unequal division of resources, victims' outcome-related concerns are violated (Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999). Previous studies have shown that a violation of these concerns is often perceived as unfair, and consequently may lead to a host of negative reactions, such as anger and spite (Pillutla & Murnighan, 1996), reduced interpersonal trust (Desmet, De Cremer, & Van Dijk, 2011a), lower intentions to preserve the relationship (Haesevoets, Reinders Folmer, De Cremer, & Van Hiel, 2013), and decreased cooperation (Bottom, Daniels, Gibson, & Murnighan, 2002).

One way to settle for the outcome-related violations is to provide a financial compensation, a monetary reimbursement to be paid by the perpetrator as a compensation for the victim's financial loss. Sometimes an *overcompensation* is offered. In these cases, victims receive a compensation that is greater than the damage they suffered, which results in a more favorable outcome for the victim than the perpetrator, and thus signals self-sacrifice from this perpetrator (see De Cremer & Van Knippenberg, 2002, 2004). Such overcompensation occurs in real-life, for example in the context of customer service complaints when companies provide additional compensation that goes beyond mere failure restoration (e.g., in the form of a refund, a coupon, or a product replacement that is worth more than the damage suffered), in order to increase post-complaint satisfaction (Boshoff, 1997; Estelami, 2000; Estelami & De Maeyer, 2002; Gilly & Hansen, 1985). Or, in case of hotel overbooking, when a customer is offered the finest suite of the hotel, a voucher, or a cash-based overcompensation (Noone & Lee, 2011).

Although overcompensation occurs in many real-life situations (as illustrated by the above mentioned examples), it is unclear whether overcompensation entails higher satisfaction with the arrangement than *equal*

compensation (i.e., compensation that covers the exact damage suffered). Indeed, very few empirical studies have investigated whether overcompensation has positive consequences beyond equal compensation. Because overcompensation is associated with additional costs on top of the expenses of equal compensation, it is costly for the perpetrator, but at the same time profitable for the victim. Moreover, since people attach high value to fairness and equality (see Camerer, 2003; Messick, 1993) − and overcompensation fails to restore equality in outcomes − the critical question that arises is whether such costly overcompensation has beneficial effects, and more specifically, has effects in addition to the impact of equal compensation? To answer this question, we contrast an economic perspective (which focuses on the magnitude of the outcomes per se) and a psychological perspective (focusing on fairness and equality in outcomes, rather than the outcome itself) on overcompensation.

An economic perspective on overcompensation

According to classic economic theory, which is based upon the concept of "homo economicus" or "economic man", individuals are mainly motivated by money and by the possibility of making profits (Franz, 2004). Hence, such an economic perspective assumes that individuals are self-interested and, above all else, want to maximize their own outcomes (Camerer & Thaler, 1995; Dawes & Thaler, 1988). This implies that, in terms of economic outcomes, after a financial harm has been inflicted, greater compensation should yield better outcomes for the victim. In line with this argument, there is some evidence in consumer behavior that indicates that, after a service failure, overcompensation results in more satisfaction than an equal compensation (Boshoff, 1997; Gilly & Hansen, 1985).

Hence, from an economic perspective, when an overcompensation is granted the recipient can be expected to show a host of positive reactions. More specifically, compared to equal compensation, overcompensation should foster greater satisfaction with the agreement, more favorable perceptions of the perpetrator,

higher levels of trust in this perpetrator, and a greater willingness to continue the relationship with this perpetrator (e.g., see Desmet et al., 2011a; Lewicki, Wiethoff, & Tomlinson, 2005; also see De Cremer & Van Kleef, 2009; De Cremer & Van Knippenberg, 2002, 2004).

A psychological perspective on overcompensation

Psychological models have postulated that behavior in interpersonal settings is not only driven by concerns for tangible outcomes, but also by other, non-material concerns (see Curhan, Elfenbein, & Xu, 2006). Specifically, rather than the magnitude of outcomes per se, it is also important whether these outcomes are fair and in proportion to the damages suffered. Indeed, a substantial body of research has shown that people are influenced profoundly by such fairness considerations (for reviews on this matter, see Bazerman, White, & Loewenstein, 1995; Folger, 1984; Törnblom, 1992), and that in many situations people adhere to the fairness norm of equality as a decision heuristic (Messick, 1993). The equality norm (Deutsch, 1975) assumes that people prefer equal outcomes between all members of some specified group (see Camerer & Thaler, 1995; Handgraaf, Van Dijk, & De Cremer, 2003; Lerner, 1975; Pillutla & Murnighan, 2003; Sampson, 1975; Van Dijk, De Cremer, & Handgraaf, 2004). Based on this norm different effects of overcompensation, relative to equal compensation, might be expected.

From one point of view, as soon as the financial compensation undoes the damage suffered by meeting or exceeding the equality norm, a ceiling effect might occur whereby people benefit little from additional financial restitution (see Haesevoets et al., 2013). This implies that overcompensation should yield similar (no better, nor worse) results as equal compensation. Accordingly, research in the area of consumer behavior recently confirmed the idea that overcompensation is of little additional value in a meta-analysis of 17 experimental studies (Gelbrich & Roschk, 2011) by showing that overcompensation does not significantly enhance

post-complaint satisfaction beyond the effect of simple compensation (i.e., when the refund given is equivalent to or less than the purchase price).

From another point of view, however, equal compensation and overcompensation differ in the extent to which the compensation reestablishes equality in outcomes between the victim and the perpetrator (Messick, 1993). That is, while equal compensation restores equality, overcompensation fails to restore equality, as it turns the state of disadvantageous inequality on the part of the victim into a state of advantageous inequality. Because of the high value that people attach to equality (Deutsch, 1975; Lerner, 1975; Sampson, 1975), equal compensation should be considered the best possible outcome for a victim. Research on fairness has indeed revealed that people's appreciation of equal and unequal outcomes may not match their objective monetary value (e.g., see Adams & Freedman, 1976). More specifically, although people prefer advantageous inequity over disadvantageous inequity, most people prefer equal outcomes over both advantageous and disadvantageous inequity (Loewenstein, Thompson, & Bazerman, 1989). In other words, people value equality over other outcome distributions, even if those might objectively have greater economic value and thus prove more favorable to the self. Following this point of view, overcompensation should even be less effective than equal compensation. Moreover, after receiving overcompensation, people may feel guilty because they consider the compensation to be exaggerated, or be suspicious about the motives of the perpetrator (see Estelami & De Maeyer, 2002).

Taken together, if people's behavior is not only driven by concerns for the outcome in itself, but also by fairness considerations, overcompensation should not be more effective (i.e., as effective or even less effective) than equal compensation in entailing positive outcomes regarding for example satisfaction, perceptions, trust, and cooperation.

Previous research

In spite of its ubiquity in social life and the different theoretical perspectives on its potential effectiveness very few studies investigated the effectiveness of overcompensation with regard to important variables such as equality, trust betrayal, trust repair, and cooperation (for some exceptions, see Bies & Tripp, 2006; Joskowicz-Jabloner & Leiser, 2013; Schweitzer, Hershey, & Bradlow, 2006; Stouten, De Cremer, & Van Dijk, 2006). Moreover, the few studies conducted so far focused on very small overcompensations and revealed inconsistent results. Specifically, relative to equal compensation, some studies reported positive effects of slight overcompensation, while other studies reported neutral or even negative effects (see Desmet et al., 2010, 2011a; Haesevoets et al., 2013).

We believe that these inconsistent results are possible due to the fact that these studies focused on different aspects of trust, namely affect-based trust (e.g., interpersonal trust, see the studies of Desmet et al., 2010, 2011a) versus cognition-based trust (e.g., relationship preservation, see the studies of Haesevoets et al., 2013). Affect-based trust, on the one hand, depends on the emotional bonds between individuals, which entails caring about others' needs (Lewis & Wiegert, 1985). Here, the main focus is on the relationship itself. Cognition-based trust, on the other hand, reflects a strategic choice based on the prospect of making a profit (Lewicki & Bunker, 1996). Here the main focus is not on the relationship itself, but on the benefits that the relationship may provide. Thus, based on these different foundations that underlie trust, it is possible that overcompensation reveals different patterns of results for more affective, relational-based outcomes (such as interpersonal trust, cf. affect-based trust) than for more cognitive, calculus-based outcomes (such as relationship preservation and further cooperation, cf. cognition-based trust; see McAllister, 1995; also see Lewicki & Bunker, 1996; Lewicki et al., 2005; Rousseau, Sitkin, Burt, & Camerer, 1998; Williams, 2001).

Present studies

Because we were particularly interested in the conflict between economic and psychological motives, in the present research we focus on the effectiveness of a large overcompensation between two strangers in a newly formed relationship. In such situations there is no interference of past behavior on future trust and cooperation. From an economic perspective, large overcompensation results in high profit for the victim, but at the same time it constitutes a serious deviation from equality according to a psychological perspective. Consequently, in the present paper we aim to answer the following research question: *After a financial damage has been inflicted, is overcompensation more effective, as effective, or even less effective than equal compensation to yield positive outcomes (like great satisfaction, favorable perceptions, and high levels of trust and cooperation)?* To answer this question, we conducted a questionnaire study (Study 1), two scenario studies (Studies 2 and 3), and a lab experiment (Study 4) in which a financial harm was inflicted in the first phase of each study (i.e., a damaged property in Studies 1 through 3 and an unequal division of resources in Study 4), that the transgressor then tried to undo by offering the victim an equal compensation or an overcompensation.

Study 1

Method

Participants, design, and procedure

The aim of this first study was to gain insight in the attributions that people ascribe to financial compensation, in order to develop a measurement for our further studies. Therefore, as part of a classroom exercise, 44 undergraduate political sciences students at Ghent University (26 men, 13 women, and five individuals who did not specify their gender, M_{age} = 21.11, SD = 3.93) participated voluntarily in a questionnaire study, in which they were randomly assigned to a two condition

(compensation: equal compensation versus overcompensation) between-subjects design. A short scenario presented an anonymous person (the perpetrator) who caused a purely financial damage of €50 to another anonymous person (the victim). In the *equal compensation* condition, participants were told that the perpetrator reimbursed this financial loss by paying the victim €50. In the *overcompensation* condition, the perpetrator paid the victim €500. No further information regarding the relationship between the perpetrator and the victim or the nature of the transgression was provided.

Measures

To get a broad picture of the attributions people believe to underlie financial compensation, we asked participants an open question: "Why do you think this person paid €50 (if the damage equals €50)?" in the *equal compensation* condition, and "Why do you think this person paid €500 (while the damage equals only €50)?" in the *overcompensation* condition.

Results

Participants' answers to the open question revealed 30 different attributions. Fourteen unique attributions were obtained in the equal compensation condition, ten attributions emerged solely in the overcompensation condition, while six attributions occurred in both the equal compensation and overcompensation conditions. Out of these 30 attributions, 15 attributions were mentioned by at least three participants. These 15 attributions (that are given in the first column of Table 1) were used to develop a measurement of attributions that people believe to underlie financial compensation. This measure was used in our further studies.

Study 2

Method

Participants, design, and procedure

As part of a classroom exercise, 90 undergraduate social sciences students at Ghent University (22 men, 65 women, and three individuals who did not specify their gender, M_{age} = 19.61, *SD* = 2.82) participated voluntarily in a scenario study. Participants were again randomly assigned to a two condition (compensation: equal compensation versus overcompensation) between-subjects design. We used the same scenario as in the previous study, in which a person first caused a financial damage and then made up for this loss by offering the victim an equal compensation or an overcompensation.

Measures

Attributions underlying a compensation. First, to measure the extent to which participants believed a particular attribution to underlie financial compensation, we used the 15 attributions that had been mentioned by at least three participants in the previous study. For each of these attributions we asked participants: "To what extent do you think this person paid €50 [attribution]?" in the *equal compensation* condition, and "To what extent do you think this person paid €500 [attribution]?" in the *overcompensation* condition (1 = *not at all*, 7 = *very much*).

Perceptions of person who offers a compensation. Besides these attributions, in the present study we also probed participants' perceptions of the person who offered the compensation. Therefore, we employed seven items that are based on the benign impressions scale (see Tazelaar, Van Lange, & Ouwerkerk, 2004; Van Lange, Ouwerkerk, & Tazelaar, 2002). In both conditions, we asked participants, "To what extent do you think this person is: honest, just, trustworthy, friendly, reliable, insincere, and unlikable (1 = *not at all*, 7 = *very much*; negative items

reverse-coded). These items were aggregated into a scale measure of perceptions of the person who offered the compensation (M = 4.54, SD = 0.96, α = .86).

Results

Factor congruence

Given that the attributions we obtained in Study 1 often pertained to only the equal compensation or overcompensation condition, we checked whether the underlying structure of these attributions was similar in both conditions. Therefore, we first extracted principal components (with eigenvalues > 1) from the correlations among the attributions in each condition separately. Next, we calculated the degree of congruence between the two sets of component loadings (see Harman, 1976).

In the equal compensation condition (n = 43), four components were extracted with an eigenvalue of 4.99, 2.23, 1.78, and 1.20, respectively. In the overcompensation condition (n = 47), we extracted five components with an eigenvalue of 4.28, 2.17, 1.55, 1.22, and 1.10, respectively. Following Harman's (1976) empirical rule, we then computed the correlations among the component scores that were obtained in both conditions. It was revealed that the four components of the equal compensation condition were well represented in the other condition, with correlations among components ranging from .75 to .93 (all ps ≤ .001). Only the fourth component in the overcompensation condition was not related to any of the components in the equal compensation condition. This result thus indicates that the four extracted components in the equal compensation condition are congruent with the factors found in the overcompensation condition.

Because we obtained support for the factor congruence across both compensation conditions, we extracted four principal components from the scores on these 15 attributions, using the total sample (N = 90). These components had an eigenvalue of 4.46, 2.54, 1.65, and 1.20, respectively. Table 1 shows the factor loadings of these four component scores after OBLIMIN rotation. As can be inferred

from these loadings, the attributions ‘enlighten one’s conscience’, ‘guilt’, ‘feeling better about oneself’, and ‘financial capability’ (attributions 1 through 4) loaded on the first component, which we labeled *proself orientation* (α = .80). The attributions ‘righteousness’, ‘logical’, ‘reciprocity’, ‘moral obligation’, and ‘taught in education’ (attributions 5 through 9) constituted the second component, which we labeled *moral orientation* (α = .86). The attributions ‘surprised’, ‘compensate for additional costs’, ‘no accurate estimation of the damage’, and ‘fear’ (attributions 10 through 13) loaded on the third component, which we labeled *uncertainty reduction orientation* (α = .67). Finally, the attributions ‘quickly get out of the situation’ and ‘silence the victim’ (attributions 14 and 15) constituted the fourth component, which we labeled *exit orientation* (α = .52). The correlations among these four components were rather modest (all *r*s < .31).

Attributions underlying a compensation

We conducted four independent t-tests to compare the scores on these four components between conditions. Therefore, we used the four component scores that were extracted by the principal component analysis (using the total sample). There was only a significant difference between equal compensation (*M* = -0.65, *SD* = 0.90) and overcompensation (*M* = 0.59, *SD* = 0.67) for *moral orientation*, *t*(86) = -7.39, *p* < 001. No significant differences between equal compensation and overcompensation were obtained for *proself orientation*, *uncertainty reduction orientation,* and *exit orientation* (all *p*s > .05). These results thus suggest that a person who offered an overcompensation is considered to be less morally oriented than a person who offered an equal compensation.

Perceptions of person who offers a compensation

We also obtained a significant difference in perceptions of the person offering the compensation, *t*(87) = 2.50, *p* < .05. A person who offered an equal

compensation (M = 4.80, SD = 0.86) is perceived more favorably than a person who offered an overcompensation (M = 4.31, SD = 1.00).

Table 1. Principal component analysis (pattern matrix) of the 15 attributions for Study 2.

Attribution	Factor loading			
To what extent do you think this person paid €50 / €500:	PC1	PC2	PC3	PC4
1) To enlighten his or her consciences	**.92**	.02	-.16	.01
2) Out of guilt	**.88**	.08	.07	-.13
3) To feel better about him- or herself	**.86**	-.11	-.01	.01
4) Because he or she is financially capable to do so	**.53**	-.15	.16	.11
5) Because this is righteous	-.02	**-.90**	-.13	.11
6) Because this is the most logical response	-.09	**-.89**	-.04	.08
7) Because he or she embraces the principle of reciprocity	.01	**-.71**	.29	-.18
8) Out of moral obligation	.13	**-.69**	.12	-.21
9) Because this is what people are taught to do	.20	**-.66**	-.11	.27
10) Because he or she is affected or surprised	-.09	-.20	**.72**	.02
11) To compensate for possible additional costs	.13	.11	**.71**	-.23
12) Because he or she cannot accurately estimate the damage	.01	.12	**.70**	.12
13) Out of fear	.00	-.22	**.55**	.20
14) To quickly get out of the situation	-.08	-.07	.03	**.89**
15) To silence the victim	.30	.20	.42	**.52**

Note. **Bold** factor loading reflects loading on the relevant component.

Discussion

This study provides initial evidence that when a financial harm has been inflicted, and the perpetrator subsequently offered an overcompensation, this person is perceived less favorably and the attributions underlying his or her behavior are considered to be due to a lower level of moral orientation than when this person offered an equal compensation. This result was obtained with a major overcompensation (i.e., compensation that covered ten times the damage suffered), which from an economic perspective represents the best situation for a victim because of the high profits, while from a psychological perspective it constitutes a serious deviation from equality. In these situations, in which the conflict between self-interest and concerns for equality is at a high level, people seem most concerned about fairness as they prefer a perpetrator who provides an equal compensation compared to a perpetrator who offers an overcompensation.

Study 3

In the previous study we focused on attributions underlying the compensation and perceptions of the perpetrator. Because trust has been reported to be an important outcome variable in previous research on the effectiveness of financial compensation (i.e., trust restoration, see Lewicki et al., 2005; Ren & Gray, 2009; also see Desmet et al., 2010, 2011a), in the present study we also examined the effectiveness of equal compensation and overcompensation on trusting intentions.

Moreover, in the present study we focused on a situation in which the participant was the victim of the financial harm and the recipient of the compensation. The previous two studies focused on a situation in which participants evaluated a financial compensation between a dyad (i.e., a victim and a perpetrator) as an observer. By making participants themselves the victim of the transgression,

this study will enable us to examine whether participants' judgments of overcompensation also extend to situations where they themselves are the recipient of this compensation (e.g., see Risen & Gilovich, 2007).

Method

Participants, design, and procedure

As part of a classroom exercise, 55 undergraduate social sciences students at Ghent University (12 men, 38 women, and five individuals who did not specify their gender, M_{age} = 19.17, *SD* = 1.51) participated voluntarily in a scenario study. They were randomly assigned to a two condition (compensation: equal compensation versus overcompensation) between-subjects design. A short scenario was presented in which a classmate (unknown to the participant) damaged the participant's newly purchased textbook during a lecture (by spilling a can of Coke on it). It was explained that his book had a monetary value of €10 (and no emotional or practical value). In the *equal compensation* condition, the perpetrator reimbursed the participant's financial loss by repaying the exact value of the textbook (i.e., €10). In the *overcompensation* condition, the perpetrator paid the participant €100.

Measures

Attributions of moral orientation. We measured the five attributions that constituted the moral orientation component in Study 2. Specifically, we asked participants, "I think that this person paid me €10 (*equal compensation* condition) / €100 (*overcompensation* condition): because this is righteous, because this is the most logical response, because he or she embraces the principle of reciprocity, out of moral obligation, and because this is what people are taught to do" (binary choice: 0 = *no*, 1 = *yes*).

Trusting intentions. Participants' trusting intentions towards the perpetrator were measured using six trust items (based on Desmet et al., 2011b): "I trust this person", "I have no trust in this person", "I think this person would deceive me if he

or she would benefit from it", "I think this person can be trusted", "I think this person would lie to me if he or she would gain from it", and "I think this person means well for me" (1 = *certainly not agree*, 7 = *certainly agree*; negative items reverse-coded). Scores were combined into a general measure of trust towards the perpetrator (M = 4.60, SD = 1.23, α = .90).

Manipulation check. Finally, to examine whether the compensation manipulation was successful, we asked participants: "To what extent has this person paid you more than the exact damage?" (1 = *not at all*, 7 = *very much; M* = 4.27, *SD* = 2.76).

Results

Manipulation check

An independent t-test revealed that participants in the overcompensation condition (M = 6.70, SD = 1.20) were more likely to indicate that the perpetrator paid them more than the exact damage, compared to participants in the equal compensation condition (M = 1.93, SD = 1.49), $t(53) = -13.05$, $p < .001$.

Attributions of moral orientation

The five attributions were examined separately using chi-square tests. Significantly more participants in the equal compensation condition than in the overcompensation condition believed these attributions to underlie the financial compensation (all ps < .01; see Table 2).

Trusting intentions

A significant difference in trusting intentions after equal compensation compared to overcompensation emerged, $t(53) = 3.23$, $p < .01$. Specifically, after equal compensation (M = 5.08, SD = 1.00) participants trusting intentions were higher than after overcompensation (M = 4.10, SD = 1.25).

Table 2. Results of the chi-square tests for attributions of moral orientation for Study 3.

Attribution	Equal compensation (n = 28)		Overcompensation (n = 27)		χ^2
I think that this person paid me €10 / €100:	No (%)	Yes (%)	No (%)	Yes (%)	
Because this is righteous	4 (14.3)	24 (85.7)	25 (92.6)	2 (7.4)	33.82***
Because this is the most logical response	6 (21.4)	22 (78.6)	26 (96.3)	1 (3.7)	31.67***
Because he or she embraces the principle of reciprocity	14 (50.0)	14 (50.0)	24 (88.9)	3 (11.1)	9.73**
Out of moral obligation	3 (10.7)	25 (89.3)	18 (66.7)	9 (33.3)	18.23***
Because this is what people are taught to do	6 (21.4)	22 (78.6)	20 (74.1)	7 (25.9)	15.28***

Note. df = 1, * p < .05, ** p < .01, *** p < .001.

Discussion

This scenario study provides further evidence that a person who offered an overcompensation is considered to be less morally oriented than a person who offered an equal compensation. Moreover, this study also suggests that, compared to equal compensation, overcompensation results in lower intentions to trust the perpetrator.

Study 4

The results of the studies described so far were all obtained on the basis of participants' self-reports and scenario studies. In the present study we used a lab experiment to test whether these results also occur when the transgression and the compensation have real monetary consequences for the participants. Additionally, this study differs from the previous studies in two other important ways.

First, in the previous three studies we only investigated major overcompensation (i.e., compensation that covered ten times the amount of the damage); while in this study we investigated whether these negative effects of overcompensation also occur when the compensation is smaller. Therefore, two

moderate forms of overcompensation (i.e., small overcompensation, which covered approximately two times the amount of the damage, and large overcompensation, which covered approximately six times the amount of the damage) as well as a control condition (i.e., no compensation) were included in this study.

Secondly, in literature a central distinction is made between affect- and cognition-based trust (see McAllister, 1995). Affect-based trust (which is also referred to as trust "form the heart", see Chua, Ingram, & Morris, 2008, p. 437) mainly focuses on the intrinsic virtue of the relationship itself (Rempel, Holmes, & Zanna, 1985); while cognition-based trust (which is also referred to as trust "from the head", see Chua et al., 2008, p. 437) reflects a strategic choice that focusses on the benefits that the relationship may yield (Lewicki & Bunker, 1996). We assume that the effectiveness of an overcompensation may vary depending on which aspects of trust it targets. Therefore, in the present study we included more calculus-based outcomes that tap into the cognitive aspect of trust (such as cooperation and relationship continuation); in addition to more relational-based outcomes which reflect affective trust (like perceptions and trusting intentions; see Lewis & Wiegert, 1985; McAllister, 1995).

Method

Participants and design

A total of 68 undergraduate students of different faculties at Ghent University (nine men, 54 women, and five individuals who did not specify their gender, M_{age} = 21.70, SD = 2.47) participated in the study in exchange for payment. Unlike the previous studies, this study was a lab experiment in which we employed a 4-level (compensation: no compensation vs. equal compensation vs. small overcompensation vs. large overcompensation) between-subjects design.

Procedure

Upon arrival in the laboratory, each participant was placed in front of a computer. First, participants were told that, in order to perform a decision task, they would receive a starting budget of €20. Further, it was highlighted that at end of the experiment participants would be paid in accordance to their earnings during this task (whereby each euro represents 10 eurocents). The decision task was explained next. This task was a standard dictator game in which two players would decide over the division of a certain amount of money (Kahneman, Knetsch, & Thaler, 1986). To induce ownership over the money that was going to be divided during this task, both players had to cede €5 of their starting budget. During the task, the first player (the allocator) would then unilaterally divide this €10, while the second player (the recipient) could not influence this division, and thus had to accept the money offered by the allocator. All participants played the role of the recipient; the allocator was simulated. Before the start of the task, participants completed three comprehension checks (i.e., "Who will divide the money?", "To what extent is the recipient able to influence the allocator's decision?", and "How much is the money in the game actually worth?"). All participants answered at least two checks correctly. Subsequently, all participants proceeded to the task in which the allocator was preprogrammed to allocate €2 to participant and to keep the remaining €8 for him- or herself. Taking into account that before the start of the task both players still had €15 left of their starting budget, the allocator's decision yielded a €17 versus €23 distribution in favor of the allocator.

Next, to examine whether participants perceived this division as a transgression, we asked participants to indicate their satisfaction with the distribution by selecting one of two messages to send to the allocator (i.e., "I am satisfied with how you divided the €10" or "I am NOT satisfied with how you divided the €10"). Five participants (7.4%) indicated that they were satisfied with the initial division, and thus did not experience it as a transgression. For these

participants the experiment ended at this point, whereas the remaining 63 participants (92.6%) proceeded to the compensation manipulation.

Participants in the *no compensation* condition received no additional money (*"I give you no extra money"*), which resulted in the recipient still ending up with €2 (or overall €17) and the allocator still ending up with €8 (or overall €23). In the *equal compensation* condition, participants received a compensation that precisely restored equality (*"I give you €3 extra"*). Thus, in this case both the allocator and the recipient eventually received €5 within the task itself and €20 in total. In the *small overcompensation* condition, participants received a compensation that resulted in the recipient ending up with a higher outcome than the allocator (*"I give you €7 extra"*). This additional compensation yielded a €9 versus €1 (or overall a €24 versus €16) distribution in favor of the participant. Finally, in the *large overcompensation* condition, participants received a compensation that resulted in the recipient ending up with a much higher outcome than the allocator (*"I give you €17 extra"*). Here, the allocator offered the €8 that he or she kept during the task as well as an additional €9 from his or her remaining starting budget, which eventually resulted in a €34 versus €6 distribution in favor of the participant.

Next, participants completed the different measures. Thereafter, the experiment was stopped, and the participants were paid. All participants received €10 for their participation, plus the money that they earned during the decision task (multiplied by 0.10). This amount depended on the specific condition they were in: In total, in the *no compensation* condition, participants received €11.7 (i.e., €10 + [€17 × 0.10]), in the *equal compensation* condition €12 (i.e., €10 + [€20 × 0.10]), in the *small overcompensation* condition €12.4 (€10 + [€24 × 0.10]), and in the *large overcompensation* condition €13.4 (i.e., €10 + [€34 × 0.10]).

Finally, the participants were debriefed, thanked and dismissed.

Measures

Satisfaction with the division. To probe participants' satisfaction with the final division, we used two items: "To what extent are you satisfied with the final division?" and "To what extent are you happy with the final division?" (1 = *not at all*, 7 = *very much*; $M = 4.74$, $SD = 2.02$, $\alpha = .97$).

Fairness of the division. To assess whether participants perceived the final division as fair, we also used two items: "To what extent do you think the final division is fair?" and "To what extent do you think the final division is just?" (1 = *not at all*, 7 = *very much*; $M = 3.67$, $SD = 2.03$, $\alpha = .96$).

Attributions of moral orientation. We used the same five attributions as in Study 3 (i.e., "To what extent do you think the allocator offered you an additional €0 / €3 / €7 / €17: because this is righteous, because this is the most logical response, because he or she embraces the principle of reciprocity, out of moral obligation, and because this is what people are taught to do"). Here, these attributions were measured using a seven-point Likert scale (1 = *not at all*, 7 = *very much; M* = 3.75, $SD = 1.48$, $\alpha = .86$) instead of a binary choice.

Perceptions of the allocator. As an indicator of participants' perceptions of the allocator, we used the same seven impressions (i.e., honest, just, trustworthy, friendly, reliable, insincere, and unlikable) and response scales (1 = *not at all*, 7 = *very much*) as in Study 2 ($M = 4.09$, $SD = 1.31$, $\alpha = .95$).

Trusting intentions. In order to grasp participants' trusting intentions towards the allocator in a broader form, we used ten trust items. Here, we used the same six trust items as in Study 3, plus an additional four trust items (which are based on the trust subscale of Mayer and Davis, 1999). These four additional items were: "If I had my way, I wouldn't let the allocator have any influence over issues that are important to me", "I am willing to let the allocator have complete power over my outcomes in the next round of the task", "I wish I had a good way to keep an eye on the allocator", and "I would be comfortable giving the allocator a task or

problem which is critical for me, even if I could not monitor his or her actions" (1 = *certainly not agree*, 7 = *certainly agree*; negative items reverse-coded). The ten trust items were aggregated into a scale measure of participants' trusting intentions (M = 3.44, SD = 1.09, α = .89).

Relationship preservation. To assess participants' intentions to preserve the relationship with the allocator we used the six-item scale developed by Haesevoets et al. (2013). A sample item is: "I am inclined to give the allocator a second chance" (1 = *certainly not agree*, 7 = *certainly agree*; negative items reverse-coded; M = 4.39, SD = 1.25, α = .91).

Cooperative intentions. To probe participants' intentions to cooperate with the allocator again in the future we used six items (Van Hiel, De Cremer, & Stouten, 2008). A sample item is: "I would like to cooperate with the allocator on a future task" (1 = *certainly not agree*, 7 = *certainly agree*; negative items reverse-coded; M = 4.30, SD = 1.50, α = .91).

Cooperative behavior. Next, before the second round of the task would start, participants were asked: "Do you want to change your current opponent for another participant?" (binary choice: 0 = *yes*, 1 = *no*; M = 0.59, SD = 0.50). After answering this question, participants were informed that the time available for the experiment was expired.

Manipulation check. Finally, to examine whether the compensation manipulation was successful, we used two items: "To what extent has the allocator offered you a lot of extra money" and "To what extent has the allocator offered you little extra money" (1 = *not at all*, 7 = *very much*; second item reverse-coded; M = 4.56, SD = 2.16, α = .94).

Results

Manipulation check

An analysis of variance (ANOVA) revealed a significant main effect of compensation on the manipulation check, $F(3, 59) = 113.64$, $p < .001$, $\eta^2_p = .85$ (see Table 3 for the means and standard deviations for each compensation condition).

We explored this main effect further using five planned contrasts (see Table 4). These contrasts revealed significant differences in the expected direction in the no compensation condition compared to the different compensation conditions (contrast 1), in the equal compensation condition compared to the two overcompensation conditions (contrast 2), in the equal compensation condition compared to the small overcompensation condition (contrast 3), and in the equal compensation condition compared to the large overcompensation condition (contrast 4). However, the difference between the small overcompensation and the large overcompensation condition was non-significant (contrast 5).

Effectiveness of financial compensation

Eight one-way ANOVA's showed significant main effects of compensation on satisfaction with the division, $F(3, 59) = 31.19$, $p < .001$, $\eta^2_p = .61$, fairness of the division, $F(3, 59) = 127.91$, $p < .001$, $\eta^2_p = .87$, attributions of moral orientation, $F(3, 59) = 27.17$, $p < .001$, $\eta^2_p = .58$, perceptions of the allocator, $F(3, 59) = 16.54$, $p < .001$, $\eta^2_p = .46$, trusting intentions, $F(3, 59) = 11.79$, $p < .001$, $\eta^2_p = .38$, relationship preservation, $F(3, 59) = 9.85$, $p < .001$, $\eta^2_p = .33$, cooperative intentions, $F(3, 59) = 10.56$, $p < .001$, $\eta^2_p = .35$, and cooperative behavior, $F(3, 59) = 3.28$, $p < .05$, $\eta^2_p = .14$ (see Table 3 for the means and standard deviations for each compensation condition).

Table 3. Means and standard deviations for each compensation condition for Study 4.

Measure	Condition							
	No compensation		Equal compensation		Small over compensation		Large over compensation	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Manipulation check	1.31	0.77	4.76	1.02	6.06	0.93	6.29	0.58
Satisfaction with division	2.25	1.08	6.47	0.80	5.00	1.29	5.18	1.85
Fairness of division	1.97	0.87	6.68	0.43	3.16	0.85	2.57	0.83
Moral orientation	2.45	0.96	5.38	0.59	3.93	0.92	3.06	1.39
Perceptions of allocator	2.70	1.04	5.05	0.98	4.46	0.82	4.11	1.12
Trusting intentions	2.41	0.82	4.22	0.82	3.60	0.63	3.49	1.21
Relationship preservation	3.17	1.40	4.89	1.10	4.80	0.68	4.71	0.84
Cooperative intentions	2.84	1.55	5.16	1.33	4.56	0.95	4.63	1.00
Cooperative behavior	0.31	0.48	0.82	0.39	0.62	0.50	0.57	0.51

Again, we explored these main effects further using five planned contrasts for each of these measures (see Table 4). The first contrast revealed that in the no compensation condition participants were less satisfied with the division, perceived it as less fair, attributed (the absence of) the compensation to occur as a result of a lower level of moral orientation on the part of the allocator, perceived him or her as less favorable, trusted him or her less, were less inclined to preserve the relationship with him or her and to cooperate with him or her in the future, and displayed less cooperative behavior than in the other compensation conditions. Regarding the second contrast, in the equal compensation condition participants were more satisfied with the division and perceived it as fairer, attributed the compensation to occur as a consequence of a higher level of moral orientation on the part of the allocator, perceived him or her as more favorable, and trusted him or her more than

in the small and large overcompensation condition; whereas no such difference occurred for relationship preservation, cooperative intentions, and cooperative behavior. More specifically, the third contrast revealed that the difference between equal compensation and small overcompensation was significant for satisfaction, fairness, attributions of moral orientation, and trust; however, the difference between these two conditions was only marginally significant for perceptions of the allocator, and non-significant for relationship preservation and cooperation. Furthermore, the results of the fourth contrast showed that the difference between equal compensation and large overcompensation was significant for satisfaction, fairness, attributions of moral orientation, perceptions of the allocator, and trust; and non-significant for relationship preservation and cooperation. Finally, the last contrast showed that small overcompensation is perceived fairer and attributed to occur due to a higher level of moral orientation on the part of the allocator than large overcompensation, whereas no such differences between these two overcompensation conditions were found for the remaining measures.

Table 4. Contrasts tested for Study 4.

Measure	Contrast									
	Contrast 1		Contrast 2		Contrast 3		Contrast 4		Contrast 5	
	CE	*SE*	*CE*	*SE*	*CE*	*SE*	*CE*	*SE*	*CE*	*SE*
Manipulation check	-4.39***	0.25	-1.41***	0.26	-1.30***	0.30	-1.52***	0.31	-0.22	0.31
Satisfaction with division	-3.30***	0.37	1.38**	0.39	1.47**	0.45	1.29**	0.46	-0.18	0.47
Fairness of division	-2.17***	0.22	3.81***	0.23	3.52***	0.26	4.11***	0.27	0.59*	0.28
Moral orientation	-1.67***	0.29	1.89***	0.30	1.45***	0.34	2.32***	0.36	0.87*	0.36
Perceptions of allocator	-1.84***	0.29	0.77*	0.30	0.60†	0.35	0.94*	0.36	0.34	0.36
Trusting intentions	-1.36***	0.26	0.68*	0.27	0.62*	0.31	0.73*	0.32	0.11	0.32
Relationship preservation	-1.63***	0.30	0.13	0.32	0.09	0.36	0.18	0.38	0.09	0.38
Cooperative intentions	-1.94***	0.36	0.56	0.38	0.59	0.43	0.53	0.45	-0.07	0.45
Cooperative behavior	-0.36*	0.14	0.23	0.14	0.20	0.16	0.25	0.17	0.05	0.17

Note. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$; *CE* = Contrast Estimate; *SE* = Standard Error; Contrast 1 = no compensation vs. equal compensation + small overcompensation + large overcompensation; Contrast 2 = equal compensation vs. small overcompensation + large overcompensation; Contrast 3 = equal compensation vs. small overcompensation; Contrast 4 = equal compensation vs. large overcompensation; Contrast 5 = small overcompensation vs. large overcompensation.

Discussion

This study provides further evidence that not only major, but also moderate overcompensation provokes negative outcomes (compared to equal compensation). That is, overcompensation is attributed to occur because of a lower level of moral orientation on the part of the perpetrator. Further, it results in less favorable perceptions of the perpetrator and lower levels of trust in the perpetrator. However, in addition to these results, overcompensation is just as effective as equal compensation to encourage relationship preservation and further cooperation.

Taken together, our results suggest that the effectiveness of overcompensation may depend on the aspect of trust on which it is focused. That is, overcompensation seems less effective than equal compensation when we focus on more relational-based outcomes (like trust and perceptions); whereas

overcompensation appears to be just as effective − and thus not more effective, although the perpetrator makes great costs − as equal compensation for more calculus-based outcomes (such as cooperation and relationship preservation; see Lewis & Wiegert, 1985; also see McAllister, 1995).

General discussion

The occurrence of a financial damage (e.g., a damaged property or an unequal division of resources) violates victims' outcome-related concerns (Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999), which can lead to a host of negative reactions (like distrust and non-cooperation, see Bottom et al., 2002; Desmet et al., 2011a). Prior research has demonstrated that in such an economic context, perpetrators can satisfy victims' outcome-related concerns by providing a financial compensation (Lewicki et al., 2005; Ren & Gray, 2009). However, despite the fact that *overcompensation* occurs in many real-life situations, it has hardly been studied in relation to important variables like trust (restoration) and cooperation.

Because overcompensation is associated with considerable costs for the perpetrator (i.e., it constitutes a financial self-sacrifice), the critical question that we tried to answer in this research is whether such costly compensation has beneficial effects in addition to the impact of equal compensation. To explore this question, we conducted a questionnaire study, two scenario studies, and a lab experiment in which the perpetrator inflicted financial harm upon the victim in the first phase of each study, that he or she then tried to undo by offering the victim an equal compensation or an overcompensation.

Main conclusions

The results of our studies revealed that overcompensation does not provide any surplus value in addition to the impact of equal compensation regarding relationship preservation and cooperation, and that it even provokes negative

outcomes in terms of perceptions and trust. This implies that trust and cooperation are not simply determined by the financial value of the compensation. Contrary to the popular belief in classic economic theory, immaterial aspects such as fairness and equality considerations also seem to contribute to the actual value that victims attach to the compensation. Hence, our findings support the notion held by many scholars that insights from psychology are useful, and even necessary, to understand people's behavior and decisions in economic contexts (for an overview, see Leiser & Azar, 2008).

In the remainder of the discussion, we further elaborate on three issues. First, we focus in more detail on the economic and psychological perspectives as point of views from which the effectiveness of overcompensation can be explained. Next, we pay attention to the different effects of overcompensation on trust and cooperation. Finally, we describe in depth some strengths and limitations of the present studies, and formulate some recommendations for further research.

Economic and psychological perspectives

The results of our studies demonstrate that overcompensation is not more effective than equal compensation. This result does not corroborate an economic perspective, which states that in monetary terms overcompensation results in the best possible outcome for the victim, and thus should result in the most favorable situation. Our findings are more in favor of a psychological perspective, which postulates that behavior in interpersonal relationships is not only driven by concerns for the magnitude of the outcome per se, but also by the degree in which the compensation restores equality in outcomes.

From a first point of view, we argued that once a financial compensation is able to undo the victim's financial loss, a ceiling effect might occur, which implies that compensation beyond the level of equal compensation should have no additional (positive or negative) effect. In line with this idea, the results of Study 4 revealed

that overcompensation is just as effective as equal compensation to promote the preservation of the relationship between the perpetrator and the victim, to increase victims' intentions to cooperate with the perpetrator again in the future, and to entail actual cooperative behavior on the part of the victim. These results also corroborate the findings of a recently conducted meta-analysis in the field of consumer behavior, which demonstrated that overcompensation has no additional effect on post-complaint satisfaction, beyond the impact of simple compensation (Gelbrich & Roschk, 2011).

However, from a second point of view, we argued that if compensation is appreciated for the extent to which it redresses inequality, overcompensation should even be less effective than equal compensation, exactly because overcompensation fails to restore equality in outcomes. As a result of this inequality in favor of the victim, he or she may feel guilty or be suspicious about the motives of this perpetrator (see Estelami & De Maeyer, 2002). Indeed, our results indicate that overcompensation results in less satisfaction with the outcome and is perceived less fair than equal compensation (Study 4). Moreover, after a financial damage was inflicted and the perpetrator subsequently offered the victim an overcompensation, his or her behavior was attributed to a lower level of moral orientation than when this person offered an equal compensation (Studies 2 through 4). Further, overcompensation also leads to less favorable perceptions of the perpetrator (Studies 2 and 4) as well as lower levels of trust in this perpetrator (Studies 3 and 4). However, here it is important to note that although overcompensation is not more effective than equal compensation, overcompensation is still more effective than no compensation. Thus, to enhance positive outcomes, it is still better that the perpetrator offers a compensation (equal or over) than no compensation at all. These results are consistent with the fairness literature which revealed that people prefer equity above both advantageous and disadvantageous inequity (i.e., inequality

aversion, see Engelmann & Strobel, 2004; also see Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999), and although both types of inequity results in negative emotions (see Walster, Walster, & Traupmann, 1978; Schafer & Keith, 1980; Rook, 1987) advantageous inequity is typically preferred to disadvantageous inequity (Loewenstein et al., 1989). Moreover, the present findings also corroborate previous research in the domain of service marketing that showed that overgenerosity (i.e., outperforming consumers' expectations through too generous actions) may under certain conditions have negative effects on customers' evaluations (Estelami & De Maeyer, 2002).

To conclude, our results revealed that although overcompensation is associated with additional costs, it has no positive effects beyond equal compensation. However, an important question that arises from the current findings is the differential effects of overcompensation regarding relationship preservation and cooperation, on the one hand, and trust and perceptions, on the other hand.

Different effects of overcompensation on trust and cooperation

We argue that these inconsistent results regarding the effectiveness of overcompensation are due to the fact that we focused on different aspects of trust (i.e., affect- versus cognition-based trust, McAllister, 1995).

More specifically, we reason that perceptions and trusting intentions (which reflect affective, relational-based outcomes informed by emotional responses to another person; Dietz & Den Hartog, 2006) are rooted in affect-based trust. Affect-based trust (also referred to as trust "from the heart", see Chua et al., 2008) is informed by emotional responses to the other party and thus reflects an implicit appraisal based on a gut feeling of another person's "dependable goodwill" (see Blois, 1999, p. 200). Here, the main focus is on the relationship itself. Conversely, we argue that relationship preservation and cooperation (which reflect cognitive, calculus-based outcomes informed by careful evaluations of potential costs and

benefits; Dietz & Den Hartog, 2006) are grounded in cognition-based trust. Cognition-based trust (also referred to as "trust from the head", see Chua et al., 2008) is informed by the kind of careful evaluation of the trustworthiness of another person, and thus reflects a strategic choice based on the prospect of making a profit (see Lewicki & Bunker, 1996; Lewis & Wiegert, 1985). Here, the main focus is not on the relationship itself, but on the benefits that the relationship may yield. Thus, when the victim has low confidence in the goodwill of the perpetrator (cf. low affective-based trust), the victim's perceptions of the perpetrator will be unfavorable and his or her trust in the perpetrator will be low. On the contrary, even when there is a certain level of suspicion on the part of the victim, cooperation will be high and the relationship will be preserved if the possible benefits of continuing the relationship outweigh the costs. However, while cooperation is possible in such situations, this cannot be considered as "true trust" because, according to Dietz and Den Hartog (2006, p. 563) "a deep a priori suspicion of the other remains".

Despite the fact that trust and cooperation entail different effects with regard to overcompensation, up till now the precise relationship between trust and cooperation − i.e., whether trust leads to cooperation or cooperation leads to trust − remains elusive, leading theorists to disagree on the causal direction (for an overview, see Hardin, 2002; Macy, 2002; also see Yamagishi, Kanazawa, Mashima, & Terai, 2005). Moreover, although numerous scholars have argued that trust is a necessary ingredient for cooperation (e.g., Cook, 2001; De Cremer & Tyler, 2005), some authors have demonstrated that trust is not a required condition for cooperation to occur (e.g., Axelrod, 1984; Mayer, Davis, & Schoorman, 1995). More specifically, cooperation can result for a variety of reasons unrelated to trust, such as coercion (e.g., a court-ordered compliance) or out of financial considerations (e.g., the possibility of making a profit; see Mayer et al., 1995). In line with this idea, our results seem to suggest that cooperation can also occur even without "true

interpersonal trust" (i.e., a deeper form of trust which results from a process of mutual risk-taking over time; see Cook, Yamagishi, Cheshire, Cooper, Matsuda, & Mashima, 2005; also see Dietz & Den Hartog, 2006). This implies that, after receiving overcompensation, victims may still distrust the perpetrator but in first instance they are willing to continue their relationship with the perpetrator and to cooperate with the perpetrator again. The reason for this cooperation may, however, be due to self-interest and the prospect of receiving specific benefits from this relationship. Nonetheless, the main message behind these results is that, while overcompensation may rebuild cooperation (albeit not more effectively than equal compensation) it does so not only at monetary, but also at relational costs that limit its effectiveness as a tool to promote true interpersonal trust.

Limitations and strengths

Before closing, some limitations, strengths, and recommendations for further research must be discussed. First, we only used undergraduate students from a Belgian university as participants in our studies (although we recruited students from different majors). This implies that our sample is not representative of the general population. Consequently, when in a specific situation financial needs are high (e.g., when a person is bankrupt) or in other cultures (e.g., the legal claim culture in the United States) potentially different effects of overcompensation can be expected. More specifically, in such situations and cultures where there is a larger focus on economic considerations, overcompensation may have better effects than presently obtained. In accordance with this idea, research on trust in the domain of inter-organizational relationships found that automobile dealers in Dutch firms respond negatively to both advantageous and disadvantageous inequity, whereas in the United States they only respond negatively to disadvantageous inequity (Scheer, Kumar, & Steenkamp, 2003). Further research should compare the effectiveness of overcompensation across different cultures.

Secondly, an important strength of our research is that we started with an open mindset (i.e., in Study 1 participants were completely free to give their own interpretation of the situation, and in Studies 2 through 4 we built further upon these attributions), used different approaches of data collection (i.e., Study 1 was a questionnaire study, Studies 2 and 3 were scenario studies, and Study 4 was a lab experiment), different transgression types (i.e., a damaged property in Studies 1 through 3, and an unequal division of resources in Study 4), and included different measures (i.e., attributions in Studies 1 through 4, perceptions in Studies 2 and 4, trust in Studies 3 and 4, and satisfaction, fairness, relationship preservation, and cooperation in Study 4). This divergence in the methods used enlarges our confidence in the robustness of our findings.

Finally, in our first three studies we employed a major overcompensation. Here, our main aim was to use a stringent test of the economic versus psychological perspective. However, our results indicate that even in such an extremely beneficial situation in economic terms, people's perception of the perpetrator were less favorable and their trust in the perpetrator was lower compared to a situation in which the perpetrator provided an equal compensation. Nonetheless, a vital strength of our research is that we were able to replicate these negative effects of overcompensation using two moderate forms of overcompensation; and this in a lab experiment in which the transgression and the subsequent compensation had real monetary consequences for the participants.

Conclusion

The present studies investigated the effectiveness of overcompensation, relative to equal compensation. Our results revealed that despite the considerable costs of overcompensation, it even has negative effects on affective, relational-based outcomes, like perceptions and trust. Furthermore, although overcompensation does not have these negative effects on cognitive, calculus-based outcomes, such as

relationship preservation and cooperation, it does not yield better outcomes than equal compensation. In conclusion, if a perpetrator has inflicted a financial damage to a person, overcompensation is not a cost-effective means to redress the damage.

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Chapter 3

More Money, More Trust? Target and Observer Differences in the Effectiveness of Financial Overcompensation to Restore Trust

Abstract

Recent research revealed that despite its financial costs, overcompensation is not more effective to restore trust in the perpetrator than equal compensation. In a lab experiment (N = 115), we compared the effects of these compensation sizes for both targets of the compensation and non-involved observers. It was revealed that overcompensation did not yield superior outcomes than equal compensation. Specifically, for targets overcompensation resulted in lower levels of trust than equal compensation, while for observers equal compensation and overcompensation resulted in similar levels of trust. This finding suggests that overcompensation is not a cost-effective trust repair strategy, neither for the targets nor for third party observers. Other implications are discussed as well.

This chapter is based on Haesevoets, T., Reinders Folmer, C., & Van Hiel, A. (2014). More money, more trust? Target and observer differences in the effectiveness of financial overcompensation to restore trust. *Psychologica Belgica, 54*, 389-394.

Introduction

Trust plays a pivotal role in many aspects of our lives, as it represents a necessary ingredient to coordinate and smooth social relationships (Cook, 2001). However, people's actions and decisions in everyday life offer numerous opportunities for violating trust (Kim, Dirks, Cooper, & Ferrin, 2006), and ample research has shown that such trust breaches may lead to pervasive and persistent negative consequences (e.g., see Lount, Zhong, Sivanathan, & Murnighan, 2008). In many situations, perpetrators try to restore broken trust by the offer of a monetary reimbursement to the victim. Previous research regarding the effectiveness of financial compensation mainly explored compensation that is smaller than or approximately equivalent to the damage suffered. On the basis of these studies (e.g., see Bottom, Daniels, Gibson, & Murnighan, 2002; also see Desmet, De Cremer, & van Dijk, 2011a), it was concluded that financial compensation is an effective tool in restoring a victim's trust. Some scholars have, however, argued that restoring broken trust may ask more from a perpetrator than just exactly restoring the damage (e.g., Kim et al., 2006). When the compensation offered by the perpetrator is of greater value than the financial loss suffered by the victim, we speak of *overcompensation.*

Because overcompensation implies additional costs on top of the expenses of compensation that exactly covers the loss suffered (i.e., *equal compensation*), it is costly for the perpetrator, but at the same time profitable for the victim. From such an economic perspective it is surprising that recent research has shown that overcompensation does not provide any surplus value beyond the level of equal compensation, and that it may even provoke adverse effects. Specifically, overcompensation results in lower levels of trust repair and less favorable perceptions of the perpetrator than equal compensation (Haesevoets, Van Hiel, Reinders Folmer, & De Cremer, 2014). These results are consistent with fairness literature (Engelmann & Strobel, 2004), which has shown that people prefer equal

outcomes (cf. equal compensation) above unequal outcomes (cf. the advantageous inequality that results from overcompensation; see Loewenstein, Thompson, & Bazerman, 1989).

Importantly, all previous studies regarding the effectiveness of financial overcompensation merely focused on the target of the compensation, thereby overlooking the potential positive influences that overcompensation may have on non-involved observing parties. Indeed, perpetrators often offer victims an overcompensation, not only to repair their relationship with the victim, but also to avoid reputational damage and to positively influence the 'general public', like for instance when a company offers a dissatisfied customer a refund, a coupon, or a product replacement that is worth more than the original purchase price (for a meta-analysis on this matter, see Gelbrich & Roschk, 2011).

In the present research, we investigated whether target-observer differences exist in the effectiveness of financial (over)compensation as a trust repair strategy. Specifically, in line with the results of Haesevoets et al. (2014) we hypothesized that for targets, overcompensation is less effective to repair trust than equal compensation (*Hypothesis 1*). With regard to observers, we formulated two competing hypotheses. According to fairness literature, people evaluate and react not only to the unfairness that they personally experience, but also to the fairness experienced by others (cf. O'Reilly & Aquino, 2011; Zhu, Martens, & Aquino, 2012). Hence, since overcompensation fails to restore equality in outcomes, a first possibility is that – similar to targets − overcompensation is also less effective than equal compensation to repair observers' trust (*Hypothesis 2a*). However, based on the affective forecasting literature (for an overview, see Wilson & Gilbert, 2003), it can be expected that observers are unable to adequately forecast their reactions to overcompensation as they lack direct involvement, and therefore experience it differently than targets. More precisely, it can be argued that people have to

experience the advantageous inequality that overcompensation entails themselves for overcompensation to result in lower levels of trust. Following this reasoning, it can be expected that for observers overcompensation has no positive nor negative effects and thus results in similar levels of trust as equal compensation (*Hypothesis 2b*).

Method

Participants and design

One hundred fifteen undergraduate students at Ghent University (75% female, M_{age} = 19.05, SD = 1.74) participated in an experiment for course credits. We employed a 2 (perspective: target versus observer) × 3 (compensation size: no compensation versus equal compensation versus overcompensation) between-subjects design.

Procedure

Participants were invited in groups of 12 persons. Upon arrival in the laboratory, participants were informed they would participate in a decision task. It was explained that in this task an allocator and a recipient must decide over the division of a certain amount of money. In the *target conditions*, participants were told that they would play this task in the role of recipient with another player present in the lab who would be assigned to the role of allocator. In the *observer conditions*, participants learnt that they would observe a task that takes place between two other players (i.e., an allocator and a recipient) who were present in the lab.

Before the start of the task, all participants received a budget of €20. To induce a sense of ownership over the money that was going to be divided during the task, both the allocator and the recipient (but not the observer) had to cede €5 of their budget. The allocator would then unilaterally divide this €10. The recipient could not influence this division, and thus had to accept the money offered by the allocator. The trust violation was operationalized by means of an unfair allocation of

the resources. That is, the allocator was preprogrammed to allocate €1 to recipient and to keep the remaining €9 for him- or herself.

To examine whether this division is perceived as a transgression by the recipient, we asked participants in the *target conditions* to indicate their satisfaction with the distribution by selecting one of two messages to send to the allocator (i.e., "I am satisfied with how you divided the money" or "I am not satisfied with how you divided the money"). In the *observer conditions*, participants observed the recipient sending the message that he or she was not satisfied with the division. In the *target conditions*, four participants (3.5%) indicated that they were satisfied with the division, and thus did not experience it as a transgression. For these participants the experiment ended at this point. The remaining 111 participants (96.5%) proceeded to the compensation size manipulation.

In the *target conditions*, the participants themselves received or did not receive compensation from the allocator, while in the *observer conditions* the participants observed another person (i.e., the recipient) receiving compensation (or not). In the *no compensation conditions*, the allocator did not give additional money to the recipient. In the *equal compensation conditions*, the allocator gave the recipient €4 extra. Finally, in the *overcompensation conditions*, the allocator offered the recipient an additional €14 (for a more detailed description of this procedure, see Haesevoets et al., 2014).

Measures

Trust

Participants' trust in the allocator was measured using the six item trust scale of Desmet et al. (2011b). A sample item is: "I trust the allocator" (*1* = totally disagree, *7* = totally agree; $\alpha = .87$).

Manipulation checks

To examine whether the perspective manipulation was successful, we used two items: “To what extent were you the recipient of the compensation?” and “To what extent was another person than you the recipient of the compensation?”. Moreover, to investigate the effectiveness of the compensation size manipulation, participants were asked: “To what extent was the compensation greater than the damage caused by the unequal division of the allocator?”. These three manipulation checks were all measured on a scale form *1* (not at all) to *7* (very much).

Results

Manipulation checks

First, we tested the effectiveness of the perspective manipulation using two one-sample *t* tests. The results for the first manipulation check revealed that for the *target conditions* the sample mean of 4.80 (*SD* = 1.62) significantly deviates from the scale’s theoretical midpoint, $t(55) = 3.71$, $p < .001$. Similarly, for the second manipulation check the analysis revealed that for the *observer conditions* the sample mean of 4.58 (*SD* = 1.61) also significantly differs from the value of 4, $t(54) = 2.69$, $p = .01$. The effectiveness of the compensation size manipulation was subsequently tested using a 2 (perspective) × 3 (compensation size) ANOVA. As expected, participants indicated more often that the compensation was greater than the damage caused by the unequal division in the *overcompensation conditions* (*M* = 6.34, *SD* = 0.97) than in the *equal compensation conditions* (*M* = 2.26, *SD* = 1.41) and the *no compensation conditions* (*M* = 1.44, *SD* = 0.89), $F(2, 105) = 180.14$, $p < .001$, $\eta^2_p = .77$. A post hoc test (LSD) showed that the mean scores of the three compensation sizes significantly differ from each other (all *p*s < .005). The main effect of perspective and the interaction effect of perspective × compensation size were non-significant, $F(1, 105) = 0.40$, $p = .531$, $\eta^2_p = .00$ and $F(2, 105) = 0.22$, $p = .806$, $\eta^2_p = .00$, respectively.

Trust

A 2 (perspective) × 3 (compensation size) ANOVA on the trust scale showed a non-significant main effect of perspective, $F(1, 105) = 0.01$, $p = .94$, $\eta^2_p = .00$, a significant main effects of compensation size, $F(2, 105) = 30.69$, $p < .001$, $\eta^2_p = .37$, and a significant interaction effect of perspective × compensation size, $F(2, 105) = 4.76$, $p = .011$, $\eta^2_p = .08$. This interaction effect was further explored using planned comparisons. Within both the *target* and the *observer conditions*, a significant effect of compensation size emerged, $F(2, 105) = 27.19$, $p < .001$, $\eta^2_p = .34$ and $F(2, 105) = 8.39$, $p < .001$, $\eta^2_p = .14$, respectively. Specifically, for both targets and observers, equal compensation ($M = 4.51$, $SD = 0.79$ and $M = 3.80$, $SD = 0.96$, respectively) and overcompensation ($M = 3.51$, $SD = 0.97$ and $M = 3.80$, $SD = 0.79$, respectively) resulted in higher levels of trust (both ps $< .001$) compared to no compensation ($M = 2.31$, $SD = 1.02$ and $M = 2.69$, $SD = 0.69$, respectively). Further, in line with *Hypothesis 1*, overcompensation is less effective to repair trust ($p < .001$) than equal compensation for targets. Moreover, as predicted by *Hypothesis 2b* (and opposite to the predictions made in the competing *Hypotheses 2a*), for observers no significant difference ($p = .986$) between equal and overcompensation occurred. Table 1 reports the means and standard deviations for each condition.

Table 1. Means and standard deviations for each condition (N = 111).

Compensation size	Perspective					
	Target		Observer		Total	
	M	*SD*	*M*	*SD*	*M*	*SD*
No compensation	2.31	1.02	2.69	0.69	2.51	0.87
Equal compensation	4.51	0.79	3.80	0.96	4.17	0.94
Overcompensation	3.51	0.97	3.80	0.79	3.65	0.88
Total	3.66	1.24	3.51	0.96	3.59	1.11

Discussion

We replicated the finding of Haesevoets et al. (2014) that despite its considerable costs for the perpetrator and its profitability for the victim, overcompensation has negative effects on the target's trust in the perpetrator (*Hypothesis 1*). Moreover, we also supplement the current literature by showing that for non-involved observing parties, overcompensation is neither more (nor less) effective than equal compensation to re-establish broken trust (*Hypothesis 2b*). The latter result can possibly be ascribed to the inability of observers to accurately predict their reaction towards overcompensation (see the affective forecasting literature; Wilson & Gilbert, 2003), which seems to align with the idea that people must experience the inequality that results from overcompensation themselves for it to result in a decrease of trust. However, although overcompensation does not entail adverse effects, it also has no additional effect on top of equal compensation in terms of perceived trustworthiness among observing parties. Our results therefore show that overcompensation is not a cost-effective tool to repair broken trust,

certainly not for the target of overcompensation, but neither for members of the public.

An important recommendation for further research is to investigate whether these findings also emerge in the context of customer services, as financial compensation is one of the most widely used strategies in service and product recovery (Davidow, 2003). Previous research in this domain has shown that after a product failure, overcompensation has few, if any, positive effects on the target of the compensation (i.e., the dissatisfied customer; see the meta-analysis of Gelbrich & Roschk, 2011). However, despite the absence of positive effects of overcompensation on targets, companies may generously reimburse dissatisfied customers by providing overcompensation in order to positively influence the general public's image of the company, like through the creation of positive word-of-mouth which can in turn attract new customers. In this vein, it is surprisingly that, at least to our knowledge, no previous research in the domain of customer services investigated whether overcompensation has indeed positive effects on observing third parties. However, if our finding that overcompensation as a means to resolve a transgression at the interpersonal level entails no positive consequences − not for targets nor for observers − would also apply to consumer settings, companies should critically assess the use of financial overcompensation as a restoration strategy for a product or service failure.

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Chapter 4

Is Trust for Sale? The Effectiveness of Financial Compensation for Repairing Competence- versus Integrity-Based Trust Violations

Abstract

Despite the popularity of financial compensation as a means for addressing trust violations, the question whether (more) money can indeed buy trust back remains largely unexplored. In the present research, we focus on the role of *violation type* and *compensation size*. The results of a scenario study and a lab experiment show that financial compensation can effectively promote the restoration of trust for transgressions that indicate a lack of competence. Conversely, for transgressions which signal a lack of integrity, financial compensation is not an effective tool to repair trust. Moreover, our findings indicate that for both violation types, overcompensation has no positive effects on top of the impact of equal compensation. These findings therefore show that when it comes to trust, money cannot buy everything.

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Introduction

The issue of trust has been on the forefront of research agendas across a variety of disciplines in social sciences including psychology, management, organizational behavior, economics, and law (Dirks, Lewicki, & Zaheer, 2009; Kramer & Lewicki, 2010; Rousseau, Sitkin, Burt, & Camerer, 1998). This multidisciplinary approach highlights the pivotal role that trust plays in many aspects of our lives, as it is part of a social glue which is essential for making us the social animal that we are (Van Vugt & Hart, 2004). In fact, almost any social decision or exchange that we engage in includes some sort of trust evaluation, either towards a person, an organization, or even society as a whole. Trust thus represents a necessary ingredient to coordinate and smoothen various types of social relationships (De Cremer & Desmet, 2012; Mayer, Davis, & Schoorman, 2007).

Given the pervasiveness of trust in our daily lives, surprisingly few studies have focused on how trust can be violated and subsequently be repaired. In many situations that involve material harm, a common restorative approach for perpetrators is to offer victims a monetary compensation (see Desmet, De Cremer, & Van Dijk, 2011a; also see Davidow, 2003; Worsfold, Worsfold, & Bradley, 2007). In the present contribution, we examine if trust violations that reflect a lack of competence or a lack of integrity can be repaired by means of a financial compensation. In addition, we investigate whether these two violation types require different levels of compensation (i.e., equal compensation or overcompensation) to effectively repair trust.

Why trust matters

A common understanding has grown that "trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau et al., 1998, p. 395). The presence of trust has been shown to offer numerous benefits (for a meta-analytic review, see

Dirks & Ferrin, 2002). For example, trust has been linked to love and happiness in close relationships (Rempel, Holmes, & Zanna, 1985). Moreover, it also establishes effective work relationships, promotes organizational commitment and performance, positively influences cooperation, and leads to lower turnover intentions (Costigan, Insinga, Berman, Kranas, & Kureshov, 2012; De Cremer & Tyler, 2005; Dirks & Ferrin, 2001; Lee, Stajkovic, & Cho, 2011; Sousa-Lima, Michel, & Caetano, 2013).

Although numerous researchers have focused on the positive consequences that emerge if trust is present, hardly any attention has been devoted to the psychology of moving from a state of distrust to a state of regained trust (i.e., *trust restoration*; De Cremer & Desmet, 2012). This gap in the literature is regretful, particularly because people's actions and decisions in everyday life offer numerous opportunities for violating trust (e.g., romantic betrayal or a friend who does not repay a loan; see Bottom, Daniels, Gibson, & Murnighan, 2002; Kim, Dirks, Cooper, & Ferrin, 2006; Kim, Ferrin, Cooper, & Dirks, 2004; Schweitzer, Hershey, & Bradlow, 2006). Acknowledging the fact that such violations lead to a host of negative outcomes regarding emotions (such as anger, sadness, and wounded pride; see Joskowicz-Jabloner & Leiser, 2013; Pillutla & Murnighan, 1996) and behavior (like revenge-seeking behavior, verbal aggression, and decreased cooperation; see Bies & Tripp, 1996; Bottom et al., 2002; Haden & Hojjat, 2006), it seems crucial to develop a better understanding of *how* trust can be *violated* and *if* and *how* violated trust can be successfully *repaired.*

The violation of trust

Prior research has demonstrated that when trust gets violated, people are motivated to seek explanations for this violation (Blount, 1995; Stouten, De Cremer, & Van Dijk, 2006). In this regard, scholars have made an important distinction between two explanations that can underlie the same trust violation. More specifically, a particular trust violation can often be ascribed to either a *lack of*

competence or a *lack of integrity* (see Ferrin, Kim, Cooper, & Dirks, 2007; Kim et al., 2004, 2006; Kim, Dirks, & Cooper, 2009; also see Janowicz-Panjaitan & Krishnan, 2009; Xie & Peng, 2009). Competence-related trust violations occur when a perpetrator violates the positive expectations that another person or group has about the perpetrator's technical and interpersonal skills required to perform a certain task (see Butler & Cantrell, 1984; Kim et al., 2004, 2006). Integrity-related trust violations, on the contrary, arise when a perpetrator adheres to a set of moral principles that are considered as unacceptable by another person or group, such as lying and cheating (Kim et al., 2004, 2006; Mayer, Davis, & Schoorman, 2007).

Research has revealed that competence and integrity violations are distinct bases for determining trustworthiness (Barber, 1983; Butler & Cantrell, 1984), which reflect differently on the perpetrator. Specifically, although a single competence violation may have unpleasant consequences, it is generally not perceived as a reliable signal of a lack of competence, let alone a lack of overall reliability. Conversely, a single lapse of integrity signals the absence of general integrity, and thus automatically reflects badly on the perpetrator (see Kim et al., 2004, 2006). An explanation for these observations has been offered by the model of dispositional attribution of Reeder and Brewer (1979). According to this model, a single poor performance does not necessarily signal incompetence given that both competent and incompetent people can behave poorly in certain situations, while a single dishonest behavior is considered a reliable signal of the absence of integrity, given the belief that only people of low integrity will behave in dishonest ways. Following this reasoning, the violation type (i.e., competence versus integrity) influences the victim's perception of the perpetrator's trustworthiness, and is thus likely to play a key role in determining *if* and *how* broken trust can effectively be *repaired.*

The repair of trust

Previous research of perpetrators' attempts to restore broken trust (for an overview, see Kim, Dirks, & Cooper, 2009) largely focused on verbal accounts such as apologies, promises, excuses, and denials (Ferrin et al., 2007; Kim et al., 2004, 2006; Tomlinson, Dineen, & Lewicki, 2004; Schweitzer at al., 2006). In this regard, the studies of Ferrin et al. (2007) and Kim et al. (2004, 2006) revealed that the violation type indeed plays a crucial role in determining whether these strategies are effective to repair broken trust. Specifically, apologies are most effective after a competence-based trust violation. When the transgression reflects a lack of integrity, attributing blame to external factors by offering an excuse or a denial generates the best outcomes. However, the latter strategies pose great risks if the perpetrator's culpability is subsequently revealed.

Given that there is nothing tangible to lend credibility to such verbal response strategies, scholars have argued that they may be discounted by victims as "cheap talk" (Bottom et al., 2002), and this should especially be the case when the trust violation results in monetary loss for the victim, which verbal responses do not redress. In such situations, actions may speak louder than words. Accordingly, a non-verbal response, such as the offer of a financial compensation, may be necessary to validate and strengthen the claim that the perpetrator will behave trustworthy in the future (Dirks, Kim, Ferrin, & Cooper, 2011). Compensations are frequently employed in a wide range of interpersonal and social relationships; for example, when we repay a colleague for a borrowed book that we lost or when a company reimburses a customer for a dissatisfactory product.

Previous research has indicated that financial compensation can be an effective tool for restoring a victim's trust (e.g., see Bottom et al., 2002; Desmet, De Cremer, & Van Dijk, 2010, 2011a, 2011b; Haesevoets, Reinders Folmer, & Van Hiel, 2014; Haesevoets, Van Hiel, Reinders Folmer, & De Cremer, 2014; also see DeCarufel, 1981; Worsfold et al., 2007). But, does the effectiveness of financial

compensation depend on the type of violation? And how much should we compensate to repair trust after such violations? Concerning this latter question, a calculative view on trust assumes that larger compensation should foster more trust (Lewicki, Wiethoff, & Tomlinson, 2005); but some recent studies revealed that this is not always the case. More specifically, relative to *equal compensation* (i.e., compensation that exactly covers the loss suffered by a victim), some studies reported positive effects of *overcompensation* (i.e., compensation that is greater than the loss suffered by a victim), while other studies reported neutral or even negative effects (see Desmet et al., 2010, 2011a, 2011b; Haesevoets, Reinders Folmer, De Cremer, & Van Hiel, 2013; Haesevoets, Van Hiel, et al., 2014). In the present contribution, we test the effectiveness of monetary compensation as a means to repair trust in the aftermath of a financial harm by taking into account both the *violation type* (competence versus integrity) and the *compensation size* (equal compensation versus overcompensation).

Hypotheses

In the present studies, participants were presented a financial situation in which a monetary loss had been suffered. We hypothesized that the positive impact of financial compensation will be a function of a combination of whether this loss can be attributed to the perpetrator's competence or integrity and the size of the compensation.

More specifically, when the violation can be ascribed to a *lack of competence*, the wrongdoing is not indicative that the perpetrator is a bad person, because anyone can display such a low performance level under certain circumstances (Ferrin et al., 2007; Kim et al., 2004, 2006). Therefore, undoing the monetary loss should be sufficient to restore trust, and little benefit would arise from additional financial restitution. Hence, we hypothesized that after a competence violation, both equal compensation and overcompensation are more effective to

repair trust than no compensation (*Hypothesis 1a*). In addition, we predicted that overcompensation has *no* supplementary value beyond the level of equal compensation (*Hypothesis 1b*).

On the contrary, when the violation can be attributed to a *lack of integrity*, the wrongdoing signals that the perpetrator is a bad person, because only people who fall short on certain moral values will display such dishonest behavior (Ferrin et al., 2007; Kim et al., 2004, 2006). Therefore, we expected that only undoing the financial damage is not sufficient to restore trust. We thus hypothesized that after an integrity fault, equal compensation is *not* more effective than no compensation (*Hypothesis 2a*). With regard to the effectiveness of overcompensation, we formulate two competing hypotheses. On the one hand, after an integrity violation, the perpetrator may show his or her goodwill by going the extra mile and showing self-sacrifice by offering the victim compensation beyond the level of equal compensation. Following this rationale, overcompensation should be more effective than both no compensation and equal compensation (*Hypothesis 2b*). On the other hand, an integrity violation might reflect so badly on the perpetrator that even overcompensation will not be effective to repair trust. Following this perspective, overcompensation can be expected to be as ineffective as no compensation and equal compensation (*Hypothesis 2c*).

Present studies

We tested our hypotheses in two studies. In both studies, we employed a financial context in which participants observed a perpetrator who inflicted a monetary loss to a victim by either a lack of competence or a lack of integrity, which he or she subsequently tried to undo by financially compensating the victim. Trust was operationalized in terms of intentions and behavior. The first study was a scenario study in which participants imagined how they would react to a perpetrator who offered no compensation, equal compensation, or overcompensation to his or

her victim. In Study 2, we conducted a lab experiment to test whether our results could be cross-validated by actual trusting behavior. The perpetrator was presented as unknown to the participant in the scenario study, whereas in the lab experiment this person was framed as a classmate.

Study 1

Method

Participants and design

A total of 141 US citizens (90 men and 51 women; M_{age} = 35.43, *SD* = 10.81), recruited through Amazon Mechanical Turk, completed a scenario study in exchange for $0.5. Fourteen participants (9.9%) failed on our check questions and were thus excluded from further analyses. We employed a 2 (violation type: competence versus integrity) × 3 (compensation size: no compensation versus equal compensation versus overcompensation) between-subjects design.

Procedure

Participants read a short scenario which presented them with two persons: Person A and Person B. In both violation type conditions, participants were told that Person A inflicted Person B a monetary loss of $100. In the competence condition, this loss was attributed to insufficient skills on part of Person A; while in the integrity condition, the loss was ascribed to insincere behavior on part of Person A. Subsequently, in the no compensation condition, Person A did not financially compensate Person B for the inflicted loss; in the equal compensation condition, Person A offered Person B a financial compensation of $100; and in the overcompensation condition, the compensation amounted $150.

Measures

Participants' trusting intentions towards Person A were measured using the six item trust scale developed by Desmet and colleagues (2011b). Particularly, we

asked participants: “I trust Person A”, “I think Person A can be trusted”, “I think Person A means well for others”, “I have no trust in Person A”, “I think Person A would deceive others if he or she would benefit from it”, and “I think Person A would lie to others if he or she would gain from it” (last three items reverse-coded; 1 = *certainly not agree*, 7 = *certainly agree*). The scores on these six items were combined into a general measure of trust towards Person A (M = 3.05, SD = 1.90, α = .96).

To examine whether the violation type manipulation was successful, we asked participants: “To what extent could the financial loss be attributed to a lack of competence? (competence manipulation check)” and “To what extent could the financial loss be attributed to a lack of integrity? (integrity manipulation check)” (1 = *not at all*, 7 = *very much*). To investigate whether the compensation size manipulation was successful, we asked participants: “Did Person A offer Person B a financial compensation?” (*no* / *yes*) and “If yes, how does this compensation relate to the inflicted loss?” (1 = *compensation equals the loss*, 7 = *compensation is larger than the loss*).

Results

Manipulation checks

We tested the effectiveness of the violation type manipulation using a 2 (violation type) × 3 (compensation size) ANOVA for both violation type manipulation checks. The results showed that participants in the competence condition attributed the violation more to a lack of competence (M = 6.35, SD = 0.85) than participants in the integrity condition (M = 2.41, SD = 1.86), $F(1, 121)$ = 236.51, $p < .001$, η^2_p = .66. Similarly, participants in the integrity condition attributed the violation more to be a lack of integrity (M = 6.58, SD = 1.04) than participants in the competence condition (M = 2.35, SD = 1.48), $F(1, 121)$ = 351.81, $p < .001$, η^2_p = .74. Moreover, a 2 (violation type) × 2 (compensation size) ANOVA

on the compensation size manipulation check showed that participants in the overcompensation condition rated the compensation as larger (M = 6.69, SD = 0.68) than participants in the equal compensation condition (M = 1.50, SD = 1.52), F(1, 76) = 394.93, p < .001, η^2_p = .84. For both the violation type manipulation checks and the compensation size manipulation check, the other main and interaction effects were non-significant (all Fs < 2.24).

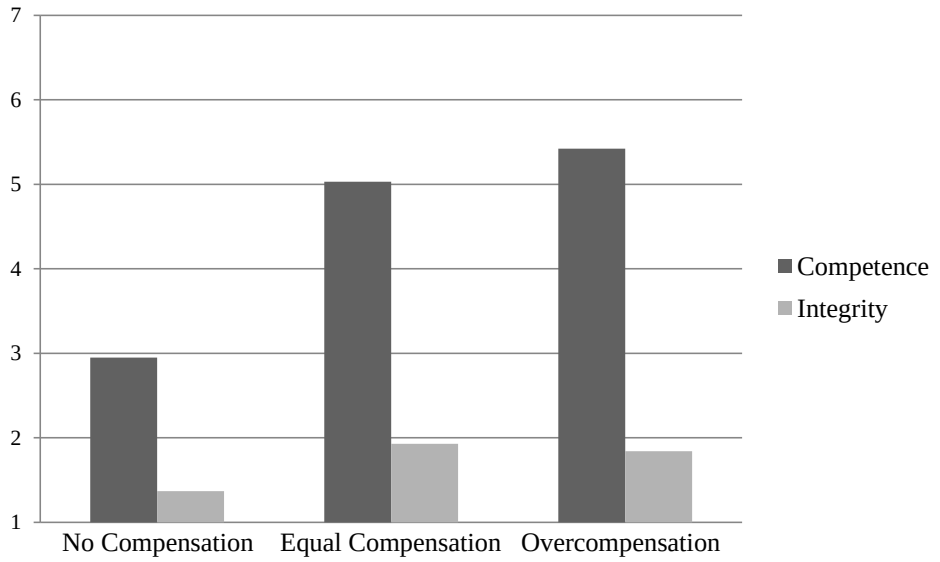
Trusting intentions

A 2 (violation type) × 3 (compensation size) ANOVA on the trust scale showed significant main effects of violation type, F(1, 121) = 216.53, p < .001, η^2_p = .64, and compensation size, F(2, 121) = 26.47, p < .001, η^2_p = .30. These main effects were qualified by a significant interaction between violation type and compensation size, F(2, 121) = 11.10, p < .001 , η^2_p = .16. To test our hypotheses, this significant interaction effect was further explored using simple effects tests (with Bonferroni correction for multiple comparisons). Figure 1 visually displays this interaction term.

Within the competence condition, there was a significant effect of compensation size, F(2, 121) = 34.89, p < .001, η^2_p = .37. As predicted by *Hypothesis 1a*, after a competence violation, equal compensation (M = 5.03, SD = 1.28) and overcompensation (M = 5.42, SD = 1.08) were both more effective for repairing trust than no compensation (M = 2.95, SD = 1.30; both ps < .001). Further, in agreement with *Hypothesis 1b*, the difference between overcompensation and equal compensation was non-significant after a competence violation (p = .709). Within the integrity condition, there is no significant effect of compensation size, F(2, 121) = 1.85, p = .162, η^2_p = .03. In agreement with *Hypothesis 2a*, after an integrity violation, equal compensation (M = 1.93, SD = 0.93) was not more effective than no compensation (M = 1.37, SD = 0.62) to repair trust (p = .25). Moreover, as predicted by *Hypothesis 2c* (and opposite to the predictions made in

the competing *Hypothesis 2b*), overcompensation (M = 1.84, SD = 0.98) was not more effective than no compensation (p = .416) and equal compensation (p > .999) to repair trust after an integrity violation.

Figure 1. Trusting intentions as a function of violation type and compensation size in Study 1.



Discussion

This study provides initial evidence that when trust gets violated by a competence-related violation, it can effectively be repaired by financial compensation, and that the size of the compensation (i.e., equal compensation or overcompensation) does not affect the degree of trust repair. On the other hand, after an integrity-related violation, financial compensation is not an effective tool to repair trust. In the next study, we use a lab experiment to test whether these results also occur when we focus on *trusting behavior* instead of *trusting intentions*.

Study 2

Method

Participants and design

A total of 137 undergraduate psychology students at Ghent University, Belgium (35 men, 102 women; M_{age} = 18.73, *SD* = 2.72), participated in a lab experiment in exchange for course credits. Again, a 2 (violation type: competence versus integrity) × 3 (compensation size: no compensation versus equal compensation versus overcompensation) between-subjects design was employed.

Procedure

Upon arrival to the laboratory, each participant was placed in front of a computer. Participants learned that they were connected to another classmate present in the lab, this person was referred to as Player A. Participants observed Player A during his or her interaction with another classmate, who was referred to as Player B. During this interaction, Player A violated Player B's trust through either a competence or an integrity fault, and consequently offered this player no compensation, equal compensation, or overcompensation. To be able to manipulate these concepts, both players were preprogrammed, unbeknownst to participants.

Specifically, during the experiment participants observed Player A as he or she completed two stages of an experimental task. This task was a puzzle task in which Player A could earn money by solving mathematical puzzles (cf. Mazar, Amir, & Ariely, 2008). During the first stage of the task, Players A and B would perform the puzzle task individually, thereby earning money for themselves. In the second stage, Players A and B would perform the puzzle task for each other, earning money for their counterpart. Participants observed Player A during both stages, thus observing his or her performance for him- or herself (in stage 1) and his or her performance for Player B (in stage 2). In this context, the violation type was manipulated, as was the level of compensation.

Player A's level of performance during both stages constituted our manipulation of violation type. In the competence condition, participants observed Player A solving only a few puzzles in both stages (i.e., poor performance both when benefiting oneself in stage 1 and when benefiting Player B in stage 2). In the integrity condition, participants observed Player A solving all puzzles during the first stage, but only a few in the second stage (i.e., excellent performance for oneself in stage 1, poor performance for Player B in stage 2). In either case, this poor performance of Player A in the second stage meant that when the outcomes of the task were unveiled after the completion of both stages, Player A had solved less puzzles for Player B than vice versa. As a result of this poor performance, Player A had inflicted a monetary loss on Player B, as Player B received €3 less than he or she had earned for Player A.

In response to this outcome, participants observed electronic communication between the two players, in which Player A blamed the poor outcomes that he or she attained for Player B to "poor skill at this type of task". In light of Player A's performance for him- or herself during stage 1 (allegedly unknown to Player B, but observed by the participant), this claim was truthful in the competence condition (where Player A attained poor outcomes in both stages), making it a competence violation; but false in the integrity condition (where Player A did attain good outcomes for oneself, but not for Player B), making it an integrity violation. Note that the puzzles were equally difficult in both stages. Although making a lesser effort for someone other than oneself can be justified, lying about this makes it a clear integrity violation.

Upon completion of the task, the outcomes of both stages were unveiled, exposing Player A's actual performance level, and the veracity of his or her claim. In response, the manipulation of compensation size was implemented, with Player A providing Player B no compensation (in the no compensation condition), a

compensation of €3 (in the equal compensation condition), or a compensation of €9 (in the overcompensation condition).

Measures

We employed a behavioral measure of participants' trust in Player A. Participants learned that after completion of the task, they had to take part in a second study, in which they would perform an (unrelated) dyadic task. It was explicitly stated that this additional task did not require mathematical skills. For this unrelated task, they were offered the choice between two possible interaction partners: Player A, whom they had just observed (choice which reflects trust in Person A) or Player B, the other player who was victimized and subsequently compensated by Player A (choice which reflects no trust in Person A). Specifically, we asked participants: "Which player would you prefer to complete the second study with?" (*Player A / Player B*).

To examine whether the violation type manipulation was successful, we asked participants: "To what extent shows Player A's behavior competence? (competence manipulation check)" and "To what extent shows Player A's behavior integrity? (integrity manipulation check)"(1 = *not at all*, 7 = *very much*). Next, to investigate whether the compensation size manipulation was successful, we asked participants: "To what extent did Player A offer Player B a lot of extra money?" (1 = *not at all*, 7 = *very much*).

Results

Manipulation checks

We tested the effectiveness of our manipulations using a 2 (violation type) × 3 (compensation size) ANOVA for each manipulation check. The analysis on the competence manipulation check showed that participants in the competence condition indicated less that Player A's behavior demonstrates competence (M = 3.26, SD = 1.39) than participants in the integrity condition (M = 4.72, SD = 1.78),

$F(1, 131) = 29.77$, $p < .001$, $\eta^2_p = .19$. Similarly, the analysis on the integrity manipulation check revealed that participants in the integrity condition indicated less that Player A's behavior demonstrates integrity ($M = 3.33$, $SD = 1.41$) compared to participants in the competence condition ($M = 4.14$, $SD = 0.82$), $F(1, 131) = 16.75$, $p < .001$, $\eta^2_p = .11$. Finally, the analysis on the compensation size manipulation check showed a significant main effect of compensation size, $F(2, 131) = 27.74$, $p < .001$, $\eta^2_p = .30$. A post hoc test (Bonferroni) showed that participants indicated more often that Player A offered Player B a lot of extra money in the overcompensation condition ($M = 6.04$, $SD = 0.87$) than in the equal compensation condition ($M = 4.76$, $SD = 1.25$), as well as in the equal compensation condition compared to the no compensation condition ($M = 3.22$, $SD = 2.76$; all ps $< .003$). For all three manipulation checks, the other main and interaction effects were non-significant (all Fs < 2.76).

Trusting behavior

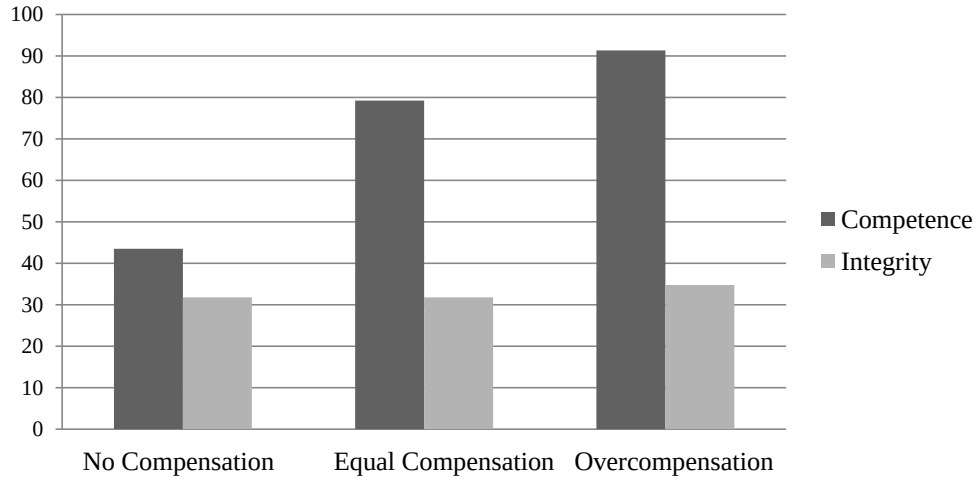
A logistic regression analysis with violation type, compensation size, and the interaction of violation type × compensation size as predictor variables and trusting behavior as dependent variable yielded a significant overall interaction effect (Wald = 6.24, $p = .044$). The percentages of participants who chose to complete the next task with Player A (choice which reflects trust) per condition are displayed in Figure 2. Our hypotheses predicted a specific pattern in the effectiveness of compensation size on the willingness to trust the perpetrator. In order to test these patterns we employed dummy coded variables for our compensation size variable as this is a three-level nominal variable.

Logistic regression analyses using these dummy coded variables yielded an almost significant interaction effect between violation type and the dummy that contrasted equal compensation with no compensation (Wald = 3.01, $p = .083$), a significant interaction effect between violation type and the dummy contrasting

overcompensation to no compensation (Wald = 5.46, p = .019), and a non-significant interaction effect between violation type and the dummy that contrasted overcompensation with equal compensation (Wald = 0.65, p = .421). To further explore these interaction effects, we relied on simple slope analyses.

In line with *Hypothesis 1a*, participants in the competence condition were more inclined to trust Player A when he or she provided Player B an equal compensation compared to no compensation (B = 1.60, SE = 0.66, Wald = 5.94, p = .015), or an overcompensation compared to no compensation (B = 2.61, SE = 0.85, Wald = 9.43, p = .002). As predicted by *Hypothesis 1b*, the difference between equal compensation and overcompensation was non-significant after a competence violation (B = 1.02, SE = .90, Wald = 1.29, p = .256). Moreover, in agreement with *Hypothesis 2a*, participants in the integrity condition were not more inclined to trust Player A when he or she provided Player B an equal compensation compared to no compensation (B < 0.001, SE = 0.65, Wald = 0.00, p > .999). Finally, in accordance with *Hypothesis 2c* (and contrary to the predictions made in the competing *Hypothesis 2b*), after an integrity violation, participants were not more inclined to trust Player A when he or she provided Player B an overcompensation compared to no compensation (B = 0.13, SE = 0.63, Wald = 0.04, p = .833), or an overcompensation compared to an equal compensation (B = 0.13, SE = 0.63, Wald = 0.04, p = .833).

Figure 2. Percentage of participants who chose to complete the next task with Player A (choice that reflects trust) as a function of violation type and compensation size in Study 2.



Discussion

This study extends Study 1 by indicating that our findings replicate in actual trusting behavior. In particular, financial compensation is an effective tool to repair trust after a competence-based trust violation, but not after an integrity-based trust violation. Furthermore, the results show that after both violation types, providing compensation beyond the level of equal compensation is not cost-effective.

General discussion

Although trust is a vital ingredient of social relationships, it is not uncommon that people violate trust, and subsequently try to restore it (Kim et al., 2004, 2006). In case of harm that can be quantified financially, perpetrators can try repair broken trust by offering a monetary compensation to the victim. The contribution of the present studies is twofold. First, we tested whether the

effectiveness of financial compensation as a means to repair trust is dependent on the violation type. Secondly, for both competence and integrity violations, we examined whether larger compensation entails higher levels of restored trust.

Main conclusions

Both of our studies showed that after a *competence-based trust violation*, equal compensation and overcompensation are more effective to repair trust compared to no compensation (*Hypothesis 1a*). This result is congruent with traditional justice models which suggest that when the harm is unintended − which is often the case with competence violations − monetary compensation "evens the score" and is thus viewed as an appropriate way to redress the inflicted harm (Austin, Walster, & Utne, 1976; Brickman, 1977). Moreover, as predicted by *Hypothesis 1b*, overcompensation was *not* more effective than equal compensation to restore trust in the aftermath of a competence violation. This finding corroborates previous research that found that once the financial harm is undone, people benefit little from additional financial restitutions (Haesevoets et al., 2013; Haesevoets, Van Hiel, et al., 2014). Thus, our studies showed that after a competence-based trust violation which resulted in a financially re-compensable harm, trust can effectively be repaired by financial compensation and the degree of trust repair is not affected by the size of the compensation.

With regard to *integrity violations*, however, equal compensation is *not* more effective than no compensation (*Hypothesis 2a*). These results corroborate studies in restorative justice research which revealed that people do not consider the provision of a compensation as satisfactory when the harm is inflicted intentionally (Darley & Pittman, 2003; Tyler, Boeckmann, Smith, & Huo, 1997), which is mostly the case with integrity violations. With regard to the effectiveness of overcompensation, we formulated two competing hypotheses. As predicted by *Hypothesis 2c* (and contrary to the predictions of *Hypothesis 2b*) our results revealed

that overcompensation is *not* more effective than no compensation and equal compensation. Our results thus extend restorative justice research by showing that in response to an integrity-based trust violation, overcompensation is also not effective in repairing trust.

In the remainder of the discussion, we further elaborate on four issues. First, we pay attention to the economic and psychological perspectives on trust repair. Secondly, we clarify why financial compensation is effective after a competence-based trust violation, but ineffective after an integrity-based trust violation. Next, we address the question if trust can at all be repaired after an integrity fault. Finally, we describe some strengths, limitations, and recommendations for future research.

Economic versus psychological perspectives on trust repair

Our findings contrast sharply with the calculative view on trust, which assumes that when a trust violation results in a monetary loss, trust repair will mainly be driven by the outcome that the financial compensation entails (Lewicki et al., 2005). Following such an economic perspective, overcompensation results in the best possible outcome for the victim, and should thus cause the highest levels of trust (cf. Desmet et al., 2011a). However, psychological models have postulated that even in financial situations, trust is not only driven by concerns for tangible outcomes, but also by non-material concerns (such as justice and fairness considerations; see Haesevoets, Van Hiel, et al., 2014; Okimoto & Tyler, 2007).

Our results confirmed the psychological perspective that, even in a purely financial context, "not only money matter". First, the provision of a financial compensation did not always facilitate trust repair. More specifically, its impact was non-significant in situations where the violation was due to a lack of integrity. Secondly, the present findings highlight that compensating victims beyond the actual financial harm has no additional value for re-establishing trust after both competence and integrity violations. Hence, our reasoning that in response to an integrity

violation additional effort on part of the perpetrator would elicit greater trust (*Hypothesis 2b*) has not been substantiated.

Trust repair after competence and integrity violations

The finding that financial compensation is an effective trust restoration strategy after a lapse of competence, but not after a lapse of integrity, can be explained by expectancies about the cause (i.e., internal versus external) and the stability (i.e., stable versus unstable) of the perpetrator's behavior. The model of dispositional attribution of Reeder and Brewer (1979) holds that *positive* information about *competence* is weighted more heavily than negative information; while *negative* information about *integrity* is weighted more heavily than positive information (see Kim, Diekmann, & Tenbrunsel, 2003; Reeder, Hesson-McInnis, Krohse, & Scialabba, 2001; for a review, see Snyder & Stukas, 1999).

More precisely, with regard to *competence violations*, the model of Reeder and Brewer (1979) indicates that a single event showing a lack of competence is not necessarily internalized to the perpetrator, because anyone could commit a competence-based trust violation under unfavorable conditions (Kim et al., 2004, 2006). Thus, although a single competence failure can be attributed both internally and externally, people may be willing to believe that the violation was an anomaly which will not repeat itself in the future (Ferrin et al., 2007). Consequently, the violation of the perpetrator is believed to be unstable, which explains why a mere compensation of the inflicted harm is perceived as satisfactory. It is important to note, however, that these predictions primarily concern isolated transgressions, like those in the present study. In the case that a perpetrator commits a series of competence faults in an ongoing relationship, it is likely that this will be regarded as a stable sign of incompetence, and will be attributed internally to the perpetrator. Moreover, sufficient incompetence can also become an integrity issue. Consider for example the case where a person indicates during a job interview that he or she is

capable of performing a certain task. The person is hired and later it turns out that he or she lacks the necessary abilities to complete the task that he or she claimed to be good at during the job interview. Here, the incompetence in itself can also become an integrity issue as it may convey the impression that the job applicant lied about his or her abilities. In such cases, financial compensation is likely to lose its effectiveness as a trust repair strategy.

Regarding *integrity violations*, the dispositional attribution model contends that people intuitively believe that people with high integrity would always abstain from dishonest behavior, regardless of the situation. A single dishonest act is thus generally considered to offer a reliable signal of the person's absence of integrity (Kim et al., 2004, 2006). Consequently, a single integrity violation reflects badly on the perpetrator by indicating that he or she is a bad or immoral person. This also implies that even in the context of ongoing relationships, it can be expected that one isolated lapse of integrity will lead to the conclusion that the perpetrator should not be trusted. Once established, this belief is very difficult to disconfirm (Ferrin et al., 2007). In sum, people attribute a single dishonest act internally and ascribe high stability to this behavior. Accordingly, a lack of integrity is seen as unchangeable, which explains why the offer of a financial compensation is unsatisfactory, as it does not prevent one to show the same erroneous behaviors in the future.

Another explanation for the present findings reside in the implicit message conveyed by competence and integrity violations in terms of the importance the perpetrator ascribes to the relationship with the victim. When a monetary loss is inflicted by a *competence fault*, the only harm is financial (Desmet et al., 2011a), while the relationship between the perpetrator and the victim is not violated. This might also explain why, after a competence fault, undoing the financial damage by providing equal compensation suffices to restore trust. However, an *integrity violation* conveys the implicit message that the relationship is not valued by the

perpetrator (Tyler et al., 1997). Consequently, when a monetary loss can be attributed to a lack of integrity, the harm done is not only financial but also relational, which implies that not only material, but also relational concerns need to be addressed in order to restore trust (see Darley & Pittman, 2003; also see Tyler & Blader, 2003). Hence, in case of an integrity violation "trust is not for sale", as it cannot be regained by solely a financial compensation. This implies that there is a mismatch between the purely instrumental benefits that the compensation entails and the harmed relational needs of the victim. Taken together, these findings should caution people from expecting that in the current "age of money" (Weatherford, 1998, p. 268), compensation would provide a universal solution to undo financial harm. Having said this, some studies (Ferrin et al., 2007; Kim et al., 2004, 2006) have shown that apologies *alone* are also not effective after an integrity violation, while such a strategy particularly appeals to relational concerns (Lazare, 2004). It is thus still unclear which strategies might help after an integrity violation.

Can trust be repaired after an integrity violation?

The question that arises here is *if* and *how* trust can be repaired when the violation concerns a matter of integrity. Kim et al. (2004, 2006) reported that attributing blame to external factors by offering an excuse or a denial is the most effective strategy to regain trust after integrity-based violations. However, as noted by these researchers, such strategies are not only unethical but also strategically risky because evidence about the perpetrator's involvement may subsequently be revealed to the victim or already be known by the victim.

Hitherto, there is no evidence in the literature suggesting that trust can successfully be repaired after an integrity violation. We suggest that it is important to consider the fact that trust repair strategies have only been studied in isolation as previous studies focused on the effectiveness of one single repair strategy. However, because both instrumental and relational concerns are violated after an integrity

violation (see Darley & Pittman, 2003; Tyler et al., 1997), perhaps different strategies should be offered simultaneously so that the "cheap talk" of an apology can be substantiated with the tangibility of a compensation (see Haesevoets et al., 2013). Future research should thus investigate whether such a combination of different strategies can be an effective method to repair trust after an integrity violation.

Moreover, the time frame of the restoration process may also play a vital role. In this vein, it is important to study trust repair processes during a longer time frame, as most social relationships develop over a period of multiple interactions. Based on the forgiveness literature (e.g., McCullough & Witvliet, 2002), we assume that the process of trust repair in response to an integrity violation will be a process of long duration, in which trust can be rebuilt gradually over time. Hence, in order to successfully restore trust, the perpetrator must prove to the victim that the lapse of integrity was an anomaly by repeatedly demonstrating that he or she possesses integrity and can thus be trusted. The investigation of time frame is an important topic for future research.

Strengths, limitations, and recommendations for further research

An important strength of the present research is that it provides an experimental method by means of which competence and integrity violations can experimentally be induced in a lab context. Thereby, it provides an important contribution to the trust literature, which until now has solely relied on scenarios to understand the impact of violation type on the restoration of trust (see Ferrin et al., 2007; Kim et al., 2004, 2006). Our research thus provides a much needed and easy applicable paradigm that can actually manipulate violation type experimentally.

Moreover, this method can also be employed to study how *victims*, rather than observers, may respond to trust repair stratgies after competence and integrity violations. While this perspective has been overlooked in extant research on such

violations (see Ferrin et al., 2007; Kim et al., 2004, 2006), it can provide crucial insight into how such reparations may affect the relationship between victim and offender, rather than the community at large (see Risen & Gilovich, 2007; also see Haesevoets, Reinders Folmer, & Van Hiel, 2014). The present research provides a crucial tool to study this question, and we regard this as a highly valuable avenue for future research.

A first limitation of the present research, however, is that we only focused on situations in which the harm was financially compensable. It could be expected that in other contexts − in which the loss is framed in non-financial terms such as in the studies of Ferrin et al. (2007) and Kim et al. (2004, 2006) – financial compensation will even be less effective to promote trust repair. Future research should thus consider the context in which trust is impaired. In this regard, it would be interesting for follow-up research to investigate whether competence- or integrity-attributable harm in, for example, a slander case leads to the same results as the ones obtained in the present study. However, it is important to note that despite the compensation friendly context in our studies, compensation size effects (of equal compensation versus overcompensation) failed to occur.

Finally, in the present studies we solely focused on the role of violation type in isolated transgressions. It is important to note that there are many other variables that could have an influence on the trust repair process. For instance, the effectiveness of financial compensation as a means to repair broken trust may also depend on the strength and the duration of the prior relationship between the perpetrator and the victim. Further, whether the violation reflects an isolated transgression or a frequently reoccurring transgression may also play an important role in the trust repair process. How these processes may impact the effectiveness of financial compensations is as of yet not well understood. For this reason, we encourage future research to take these variables into account.

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Chapter 5

How Much Compensation is Too Much? An Investigation of the Effectiveness of Financial Overcompensation as a Means to Enhance Customer Loyalty

Abstract

The present chapter examines the effectiveness of financial overcompensation as a means to enhance customer loyalty. Overcompensation implies that customers are entitled to a refund that is larger than the purchase price. It is, however, still unclear whether large overcompensations entail saturation effects, or alternatively, result in an actual drop in customer loyalty. We predicted that the overcompensation–loyalty relationship is generally characterized by an inverted U-shaped function. In line with this prediction, the results of four studies showed that mild overcompensations had an additional positive effect on customer loyalty beyond equal compensation, but only up to compensation levels of approximately 150% of the purchase price of faulty products, after which the effectiveness of overcompensation clearly diminished. Despite this overall pattern, two studies revealed robust individual differences in how customers react to increasing overcompensation. A majority of customers increased their loyalty when the overcompensation enlarged, but the curve flattened out in the high range. However, there was also a smaller portion of customers who reacted negatively to every form of overcompensation.

This chapter is based on Haesevoets, T., Van Hiel, A., Pandelaere, M., Bostyn, D., & De Cremer, D. (in press). How much compensation is too much? An investigation of the effectiveness of financial overcompensation as a means to enhance customer loyalty. *Judgment and Decision Making.*

Introduction

Suppose that you bought a new vacuum cleaner at a nearby store. The vacuum cleaner turned out to be malfunctioning and you decided to go straight back to the store to complain about this. One way to settle this product failure is through a monetary reimbursement by the store. Customers often receive compensation that exceeds the damage suffered, which is generally referred to as *overcompensation* (Gelbrich & Roschk, 2011). In the example of a malfunctioning vacuum cleaner, the store can, for instance, offer you a reimbursement that is worth more than the original purchase price. Similarly, in case of hotel overbooking, customers can be offered the finest suite of the hotel or, if no other room is available, a voucher- or cash-based compensation that is worth more than the original room price (Noone & Lee, 2011). Or, when a restaurant serves the wrong dish, it can replace the dish and additionally offer the customer the meal for free (Hocutt, Bowers, & Donavan, 2006). Other examples of overcompensation can be found in the context of insurance companies that sometimes overpay material losses (Tullberg, 2006).

Despite its pervasive use and its additional financial cost to companies, it is surprising to see that it is still unclear how overcompensation affects customers' responses beyond compensation that covers the damage exactly (i.e., equal compensation). This is particularly the case in light of maintaining or even enhancing customer loyalty. From an economic perspective, individuals are primarily concerned with maximizing their own outcomes (cf. Camerer & Thaler, 1995; Dawes & Thaler, 1988). As a result, the greater the level of compensation the higher the level of recovery should be. Following this "more is better" assumption, overcompensation should be a more effective recovery remedy than equal compensation; and, even more importantly, greater levels of overcompensation should result in higher loyalty levels than smaller ones. In the present study we investigated whether this is indeed the case.

Effectiveness of financial overcompensation

For most companies occasional lapses in product (or service) quality are nearly inevitable, making attempts to restore such failures highly relevant. Because the primary reason for a complaint is often a monetary loss by the customer, reimbursing this tangible damage is seen as vital for the recovery process. Ample studies have indicated that compensation is indeed the key driver of satisfaction and repurchase intention after failures (for overviews, see Davidow, 2003; Gelbrich & Roschk, 2011). Consequently, companies might opt to provide customers as much compensation as possible, and – as illustrated by the above mentioned examples – compensations that surpass the mere damage are frequently employed by companies. A critical question that arises is whether such costly overcompensations have beneficial effects on the recovery process beyond less costly equal compensation.

Although overcompensation is an open-ended interval with no natural upper boundary, most prior compensation studies included a maximum of two or three overcompensation levels (e.g., Boshoff, 1997; Garrett, 1999; Gilly & Hansen, 1985; Hocutt et al., 2006; Noone & Lee, 2011), which is insufficient to cover the broad overcompensation range. Fortunately, there is a recent study by Gelbrich, Gäthke, and Grégoire (2015) in which the effectiveness of 11 compensation levels (ranging from 0% to 200% of the loss, in steps of 20%) were compared. Importantly, although Gelbrich and colleagues included a total of 11 compensation levels, only five of these were larger than the loss and can hence be categorized as overcompensations (i.e., 120%, 140%, 160%, 180%, and 200%). In this overcompensation range, the compensation–satisfaction relationship was represented by a concave curve. Small amounts of overcompensation were more effective than equal compensation. However, there was some level of discrepancy between the estimated curve and the actual observations in the higher range of overcompensations. Specifically, for larger overcompensations the estimated curve

showed a downward slope when customers rejected a flawed service, but a further examination of the observed mean values indicates a saturation effect instead of a negative return. Consequently, Gelbrich et al. noted the following: "As the observed means seem to indicate saturation, we suggest collecting additional data for extreme values to better understand this pattern (…). Such research could confirm a saturation effect or may find a true negative effect" (p. 119).

In reaction to this observation, an important aim of the present research was to investigate the curve progression between overcompensation and recovery in greater detail, in order to unravel whether high amounts of overcompensation lead to a saturation effect (resulting in a flattening curve) or a true negative effect (leading to a downstream curve). In both cases, the overcompensation becomes cost-ineffective at a certain point, but a downstream curve would even indicate that costly overcompensation may in fact harm the interests of companies. In this vein, we also aimed to identify the optimal overcompensation level that results in the highest degree of recovery. Further, we also explored if there are individual differences in how customers respond to different levels of overcompensation.

Curve progression

In the present study customer loyalty – a multiple dimensional construct that includes, besides repurchase intention, the willingness to recommend a company to others and to return to a company in the future (see Lam, Shankar, Erramilli, & Murthy, 2004; Webster & Sundaram, 1998) – was investigated as the main outcome variable. We started from the basic assumption that the degree of customer loyalty may depend on the overcompensation size (cf. Gelbrich et al., 2015). That is, the impact of an overcompensation is expected to differ in specific zones along the overcompensation continuum. But how does the magnitude of an overcompensation influence its effectiveness?

It is important to realize that in case of a product failure the customer has to establish that the product is actually defective, physically return the faulty product, and persuade the company to replace or reimburse the item. Returning a dissatisfactory product thus elicits additional costs for the customer in terms of time and money, and because it is unpleasant to return a product and expressing complaints, it can also lead to psychological costs. In order to establish a failure free situation, the provided reimbursement should thus be larger than the product price of the dissatisfactory product in order to take the inconveniences of returning a faulty product into consideration. It can therefore be expected that in the aftermath of a product failure customers feel that they are entitled to receive more than just damage restoration. As such, small overcompensation is expected to enhance customer loyalty beyond the level that is already reached by equal compensation. Although a general positive effect can be expected from small overcompensation, prior research indicates that especially large amounts of cash-based overcompensation are not well received by customers (see Estelami & De Maeyer, 2002; also see Garrett, 1999; Noone & Lee, 2011, for some examples). In this light, it can be expected that, from a particular level onwards, the overcompensation will be perceived as too much, and as such could result in a decay in customer loyalty.

Taken together, we hypothesize that the effect of overcompensation on customer loyalty will be characterized by an inverted U-shaped function: As the level of overcompensation increases, customer loyalty also improves, but only to a certain point beyond which an increase in overcompensation generates a drop in customer loyalty. In the present contribution we aimed to identify the optimal overcompensation level that produces the highest level of customer loyalty.

Individual differences

Prior studies investigating overcompensation effects all employed between-subject designs in which participants were confronted with only one single

compensation level (see Boshoff, 1997; Estelami & De Maeyer, 2002; Gelbrich et al., 2015; Garrett, 1999; Hocutt et al., 2006; Noone & Lee, 2011). As a result, these studies did not incorporate analyses of how people react to different overcompensation sizes, and as such these studies were not suited to thoroughly investigate the role of individual differences. Although we expect that the curve between overcompensation and customer loyalty is inverted U-shaped, it is possible that there are individual differences in how customers respond to various overcompensation levels. Indeed, the presence of a general trend does not preclude the possibility of different classes of individuals, all reacting differently to increasing levels of overcompensation.

In this regard, it can be expected that there are customers for whom loyalty increases with extra overcompensation and customers for whom loyalty decreases with extra overcompensation. A salient group, at least in theoretical terms, might be labelled as "homo economicus" (or economic man). This concept portrays humans as consistently rational and narrowly self-interested agents who usually pursue to maximize utility as a consumer (see Rittenberg & Tregarthen, 2012; also see Camerer & Thaler, 1995; Dawes & Thaler, 1988). Because in economic terms larger compensations result in better outcomes for the customer, for these people it can be expected that the greater the level of compensation, the higher the level of recovery will be. As such, for this subset of customers it is expected that overcompensation results in higher loyalty ratings than equal compensation (cf. Boshoff, 1997; Gilly & Hansen, 1985, Hocutt et al., 2006), and, even more importantly, that greater levels of overcompensation result in higher loyalty ratings than smaller ones (cf. Gelbrich et al., 2015).

However, this particular group should be accompanied by other groups of customers given the evidence that rather high overcompensation results in similar or even lower levels of customer loyalty than equal compensation (see Garrett, 1999;

Estelami & De Maeyer, 2002; Noone & Lee, 2011; also see Haesevoets, Reinders Folmer, De Cremer, & Van Hiel, 2013; Haesevoets, Van Hiel, Reinders Folmer, & De Cremer, 2014). A possible other group of costumers might be those who react negatively to every form of overcompensation, resulting in an immediate decline in customer loyalty once the compensation transcends the point of equality. Indeed, many people prefer equal outcomes over unequal outcomes (Loewenstein, Thompson, & Bazerman, 1989). Moreover, inequality is not only considered to be unwanted when one receives less than another party, but receiving more than others is generally considered to be undesirable too (see Blount, 1995; Dana, Cain, & Dawes, 2006). Given that overcompensation is a form of advantageous inequality, customers may feel guilty and indebted to the provider of the compensation as they believe that they are getting much more than they deserve (Garrett, 1999; McCollough, Berry, & Yadav, 2000). Their might thus also be a subset of customers for whom greater levels of overcompensation result in lower levels of customer loyalty than smaller ones.

However, as we are unaware of any study of individual differences in the context of overcompensation, the present exploration may yield other classes of individuals showing distinct reactions across the range of overcompensations. Moreover, rising and falling curves are not necessarily linear but might instead be quadratic. In the present research we employed within-subject design studies in which each participant had to rate multiple overcompensation levels in order to examine the existence of these individual difference patterns.

The present studies

The goals of the present study were twofold. First, we aimed to determine the exact nature of the relationship between the level of overcompensation and the degree of customer loyalty, because especially in the high overcompensation range it is still unclear whether in general terms the compensation–loyalty curve flattens or

actually declines. If too much compensation is offered to customers, companies are unnecessarily wasting money, even at the risk of adverse effects on customer loyalty. In this venture, the present research meets the call of ample scholars (e.g., Davidow, 2003; Estelami & De Maeyer, 2002; Gelbrich et al., 2015; Gelbrich & Roschk, 2011) who have argued that it is vital for companies to identify the point from which more compensation becomes too much. In this light, we also aimed to identify the optimal level of overcompensation that generates the highest degree of customer loyalty. Moreover, although the relationship between overcompensation and customer loyalty is generally expected to be characterized by an inverted U-curve, customers might react differently to various overcompensations. The second aim of our research was therefore to investigate if there are robust individual differences in how customers react to increasing levels of overcompensation. No prior studies, at least to our knowledge, have investigated such individual differences.

In order to achieve these two goals, we conducted four studies in which we systematically studied the overcompensation continuum by including a wide range of different overcompensation levels and by using different study methods. More precisely, in the first study participants were asked to evaluate one single compensation level, whereas in the latter three studies participants had to rate multiple compensation levels (both separately and in pairs).

Study 1

Similarly to the research of Gelbrich and colleagues (2015), we investigated the overcompensation continuum using a design in which the different compensation levels were manipulated between-subjects. In order to better understand the slope of the compensation–loyalty curve in the high overcompensation range (flat or declining), we followed these authors' suggestion to include more extreme

overcompensation values. In this light, in addition to a 100% and 150% compensation level, we included two more extreme overcompensation amounts which covered 300% and 500% of the product price of a dissatisfactory product.

Method

Participants and design

A sample of 192 US citizens (92 men, 100 women, M_{age} = 34.22, *SD* = 12.13) was recruited through Amazon Mechanical Turk, which has been demonstrated to be an appropriate method of recruiting participants (Buhrmester, Kwang, & Gosling, 2011; Hauser & Schwarz, 2016; Paolacci & Chandler, 2014). Participants completed a scenario study in exchange for payment. To safeguard data quality, we implemented multiple attention checks spread throughout the study. One participant (0.5%) was excluded from further analyses because he failed on these check questions; three additional participants (1.6%) were excluded because they were unable to answer our manipulation check regarding the received compensation level correctly. Participants were randomly assigned to one condition of a 4-level (compensation level: 100%, 150%, 300%, and 500% of the purchase price) between-subjects design.

Procedure

Participants were presented with a written scenario in which they were asked to imagine that their vacuum cleaner broke down and that they paid $100 for a new one at a nearby store. When participants returned home, their new vacuum cleaner turned out to be malfunctioning. Participants were then asked to imagine that they returned to the store to complain about this product failure. Subsequently, participants were informed that the store reacted to this failure by offering them a compensation that exactly covered the purchase price (i.e., $100) in the equal compensation condition, or a compensation that was larger than the purchase price in the three overcompensation conditions (i.e., $150, $300, or $500).

Measures

Following Gelbrich et al. (2015), we first checked the effectiveness of the compensation manipulation using an open-ended question about the perceived monetary value of the remuneration. More specifically, we asked participants: "How much money did you receive from the store as compensation for your broken vacuum cleaner?" Next, customer loyalty was measured with a four item scale. These items are based on former scales that probed different indicators of customer loyalty (see Butcher, Sparks, & O'Callaghan, 2002; Grewal, Roggeveen, & Tsiros, 2008; Lam et al., 2004). More precisely, we asked participants to rate the following items, after receiving this compensation: "I am planning to purchase products at this store in the future" (repurchase), "I look forward to return to this store again" (return), "I will recommend this store to a friend who seeks my advice" (recommend), and "I will buy more products in this store again in the future" (patronage) (1 = *not at all*, 7 = *very much; M* = 5.14, *SD* = 1.64, Cronbach alpha = .97).

Results

Figure 1 visualizes the relationship between the level of compensation and the degree of customer loyalty. This figure shows that the curve first goes up, followed by a downwards trend in the high overcompensation range, which suggests an inverted U-relationship between compensation level and customer loyalty. In order to test statistically whether the overcompensation–loyalty curve is quadratic in nature, we conducted a regression analysis, using SPSS software, in which we included both the linear (Model 1) and the quadratic term (Model 2) for the effect of compensation level. The results of this analysis revealed that in the first model the linear term explained 2.0% of the variance in customer loyalty (b = 0.14, $F(1, 186)$ = 3.85, p = .05). In the second model, the addition of the quadratic term explained an additional 5.5% of the variance in customer loyalty ($F(1, 185)$ = 11.05, p = .001).

Here, the beta-values of the linear (b = 1.51, p < .001) and the quadratic term (b = -1.39, p = .001) were both significant.

In addition, we also conducted a post-hoc test to examine whether there were significant differences among the four compensation levels. This test revealed that the equal compensation condition (100%) resulted in significant lower customer loyalty ratings (all ps < .05) than the three overcompensation conditions (150%, 300%, and 500%). Although Figure 1 suggests a small decay in customer loyalty for the highest overcompensation level, no significant differences in customer loyalty were found among the three overcompensation levels (all ps > .46). As such, we were not able to substantiate the presence of an inverted U-curve.

Figure 1. Relationship between compensation level and customer loyalty in Study 1.
Note. The graph is based on the observed means: $M_{100\%} = 4.38$, $SD = 1.84$; $M_{150\%} = 5.30$, $SD = 1.56$; $M_{300\%} = 5.70$, $SD = 1.07$; $M_{500\%} = 5.22$, $SD = 1.72$.

Discussion

Following the example of Gelbrich et al. (2015), we investigated the effectiveness of different overcompensation sizes with a between-subjects design. There was no actual decline in the high overcompensation range, as our results

revealed no significant differences among the three included overcompensation conditions. Similar to Gelbrich and colleagues our findings thus seem to indicate that when customers reject a dissatisfactory product there is no additional positive recovery effect once the overcompensation crosses a certain point, but based on the current results it is not possible to draw a firm conclusion regarding the location of this particular point, and the effectiveness of overcompensation after this point (flat or declining).

Importantly, the use of between-subjects designs to investigate preferences for different compensation levels is associated with some disadvantages. An important limitation of manipulating compensation levels between-subjects is that participants only have to judge one single compensation level. By using a within-subjects design in which the same participants have to judge multiple compensation levels, more fine-grained analyses can be conducted. Based on the evaluability framework, customers are expected to be more sensitive to differences in overcompensation sizes when they evaluate multiple compensation levels than when they are confronted with only one compensation level (see Hsee, 1996; Hsee, Loewenstein, White, & Bazerman, 1999; Hsee & Zhang, 2010).

In this regard, Bazerman, Loewenstein, and White (1992) have made an important distinction between two methods that can be used to evaluate multiple alternatives, that is, participants can be forced to choose one preferred option among two or more alternatives, or be asked to judge multiple alternatives separately. In the next study, we used the first method in which participants had to judge different compensation levels in pairs, and indicate which of the two levels they preferred. Such a method of paired comparisons allows an explicit comparison of many different compensation levels as well as the estimation of a curve that visually displays the nature of the relationship between the level of overcompensation and the degree of customer loyalty. Moreover, this method also provides a useful way to

determine the optimal level of overcompensation that results in the highest degree of customer loyalty.

Study 2

Method

Participants and design

A total of 19 undergraduate university students (3 men, 16 women, M_{age} = 22.89, *SD* = 3.81) of different faculties (i.e., psychology and educational sciences, political and social sciences, arts and philosophy, medicine and health sciences, and law) participated in this study in exchange for payment. In the current study, the compensation levels ranged from 100% up till 200% of the purchase price of a dissatisfactory product, in small steps of 5%. This implies that in total 21 compensation levels were included.

Procedure

Students were invited in groups of four persons. Upon arrival to the laboratory, participants were presented with a written scenario in which they were asked to imagine that they had bought a new digital photo camera at a nearby store for €100 (worth $106 at the time that the study was conducted). Participants were then informed that when they came home the camera turned out to be broken. The store decided to financially compensate for this malfunctioning. Next, participants were asked to evaluate different compensations which the store could use to respond to this product failure.

The method of paired comparisons is a well-established technique for measuring relative preferences assigned to certain objects of any kind. Generally spoken, the aim of this method is to establish an ordering of the objects on a preference scale according to specific attributes. Therefore, the paired comparison method splits the ordering process into a series of evaluations carried out on two

objects at a time. For each of these pairs, a decision is made which of the two objects is preferred (for more detailed information on this method, see Hatzinger & Dittrich, 2012; see also David, 1963; Thurstone; 1927). In the context of the present study, the objects were embodied by the 21 included compensation levels, which resulted in a total of 210 pairwise comparisons for each participant to complete. These pairs were presented to participants in a random order.

Measures

For each of the 210 comparisons, participants were asked to answer the following question: "After which of the following two compensations are you the most willing to buy products at this store again?" (item based on the repeat purchase intention item of Garrett, 1999). Because repurchase intention can be seen as a central dimension of customer loyalty (see Lam et al., 2004; Webster & Sundaram, 1998), we used this specific item as an index for the customer loyalty construct.

Results

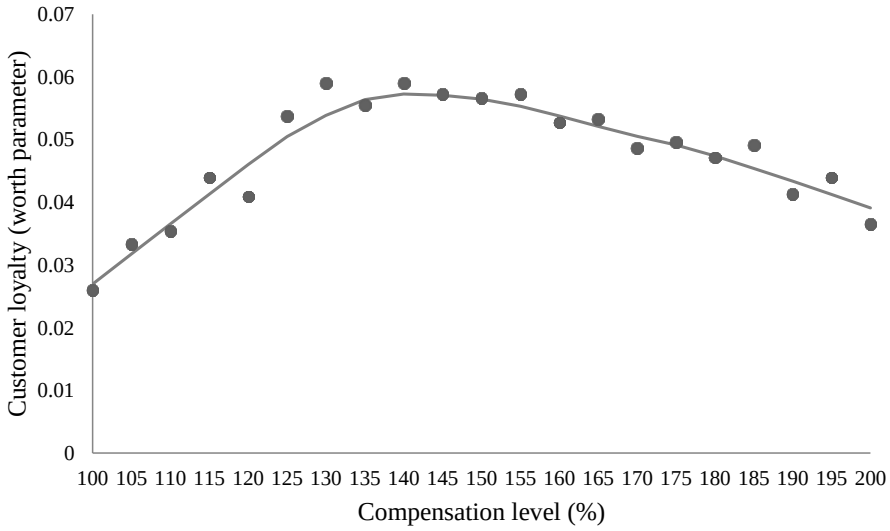
A simple preference scale was constructed to numerically describe perceived preference for each compensation level using R software. This scale was estimated through a Bradley-Terry model using the R package Prefmod (Hatzinger & Dittrich, 2012). Bradley-Terry models are a variant of loglinear models (Dittrich, Hatzinger, & Katzenbeisser 1998; Sinclair, 1982) which assume that, given J objects, the observed number of times in which object *j* was preferred over object *k* follows a Poisson distribution. The location of each object on the preference scale is estimated in a worth parameter π_j that can be estimated through the function:

$$p(j > k \mid \pi_j, \pi_k) = \pi_j / (\pi_j + \pi_k)$$

Although these models allow us to test whether the preference for each compensation level differs from the preference for another compensation level, they assume that the objects being compared are categorical in nature and hence do not

allow us to test directly for a linear or non-linear effect of compensation level on preference. However, as depicted in Figure 2, the estimated worth values of each compensation level clearly suggest an inverted U-relation. That is, customer loyalty increased up to a compensation level of 140%. After this optimal level, customer loyalty clearly declined.

Figure 2. Relationship between compensation level and customer loyalty in Study 2.
Note. Worth parameter: Given two compensation levels j and k, the probability that compensation level j is preferred over compensation level k is given by the worth of j divided by the sum of the worth of j and the worth of k. The line represents a loess-curve fitted to the predicted worth values for visualization purposes.



Discussion

The present study provides some initial evidence for the predicted inverted U-curve between level of overcompensation and degree of customer loyalty. Especially, in the present study the ideal overcompensation level emerged at 140% of the purchase price of the dissatisfactory product. After overcompensation

exceeded this threshold, its effectiveness as a means to enhance customer loyalty seems to deteriorate. Hence, the present study's findings suggest that too much compensation can indeed affect customer loyalty negatively.

The next study was designed with the aim to replicate the present findings using a different study method, in which participants had to rate each compensation level separately instead of in pairs (i.e., a standard within-subjects design), that allows us to statistically test the linear and quadratic components of the compensation–loyalty relationship. Moreover, scholars have argued that when the magnitude of the failure in financial terms is high, customers might react differently to the compensation than when the magnitude is low (see Garrett, 1999; Smith, Bolton, & Wagner, 1999). Therefore, in the next study we also included several products – ranging in purchase price from $5 to $500 – in order to test whether we could replicate the inverted U-relationship between overcompensation and customer loyalty for different failure magnitudes.

Importantly, an inverted U-relation may point toward the existence of two opposing mechanisms that jointly operate (Coombs & Avrunin, 1977). For instance, in the context of social groups, it has been argued that people prefer membership of moderately sized minorities rather than either small minorities or large majorities, because it balances the need for belonging – which implies a positive relation between group size and preference – and the need for distinctiveness – which implies a negative relation between group size and preference (Leonardelli, Pickett, & Brewer, 2010). Alternatively, an inverted U-curve may arise when a sample consists of subsamples with different relations, and the resulting general trend may just be the mere mean tendency of distinctive patterns. Therefore, in the next study we also explored if there are individual differences in customers' reactions to growing levels of overcompensation.

Study 3

Method

Participants and design

A total of 251 US citizens (138 men, 113 women, M_{age} = 33.95, *SD* = 10.46), recruited through Amazon Mechanical Turk, completed this study in exchange for payment. Eighteen participants (7.2%) were excluded from further analyses because they failed on our check questions. We employed a mixed-factorial design in which we included seven different compensation amounts as the within-factor (compensation level: 100%, 125%, 150%, 175%, 200%, 225%, and 250% of the purchase price) and 12 different products that were nested within four different price classes as the between-factor (product price and product type: $5: kilo tomatoes, book, pair of socks; $50: blender, sweatshirt, bottle of wine; $100: pair of shoes, espresso machine, coffee table; and $500: television, watch, dining table).

Procedure

To administer our manipulations, participants were presented with a written scenario in which they were asked to imagine that they had bought one of these 12 different products at a nearby store, and that it turned out that their purchase was damaged or malfunctioning. Participants were then asked to imagine that they returned to the store to complain about this product failure. Subsequently, participants evaluated seven responses by which the store could react to this failure. Each of these reactions presented a specific compensation level. In the present study, the different compensation levels were offered in ascending order. Customer loyalty was measured with the same four items as in Study 1.

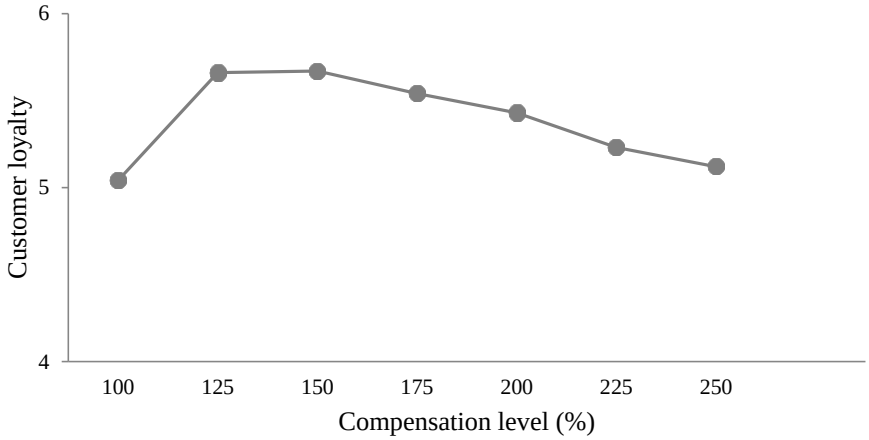
Results

Curve progression

We analyzed the effect of compensation level on customer loyalty – an index created by aggregating the return, repurchase, recommend, and patronage

items. A one-way repeated measures ANOVA on customer loyalty showed that the compensation levels of 100%, 225%, and 250% all lead to lower customer loyalty than the compensation levels of 125% to 200% (all *p*s < .001), which supports the notion that loyalty increases with higher compensation up to a certain point, after which it decreases again. In fact, loyalty for the compensation levels of 100%, 225% and 250% did not significantly differ from each other (all *p*s > .18). Figure 3 visualizes the relationship between the level of compensation and the degree of customer loyalty.

Figure 3. Relationship between compensation level and customer loyalty in Study 3.
Note. The graph is based on the observed means (collapsed across product prices): $M_{100\%}$ *= 5.05, SD = 1.60;* $M_{125\%}$ *= 5.66, SD = 1.39;* $M_{150\%}$ *= 5.67, SD = 1.54;* $M_{175\%}$ *= 5.54, SD = 1.68;* $M_{200\%}$ *= 5.43, SD = 1.85;* $M_{225\%}$ *= 5.23, SD = 2.02;* $M_{250\%}$ *= 5.12, SD = 2.12.*



To examine the inverted U-relation in greater depth, we analyzed the data through multilevel regression in Mplus, with observations (level 1) nested in participants (level 2). We treated the independent variable, level of compensation, as a quantitative variable in our analyses and we estimated the functional form of its

effect by considering both a linear and a quadratic trend. To eliminate problems associated with small parameter estimates, we rescaled the compensation levels (100% to 250%, in steps of 25%) to an index variable (1 to 7). This linear transformation did not affect any substantial result or statistical test. Finally, we included the effect of product price ($5, $50, $100, and $500) using three dummy variables with the highest price being the reference category.

Because the data are multilevel, the Cronbach alpha of customer loyalty can be estimated at the between and the within levels. The analyses revealed that both are very high ($\alpha = .99$ and $\alpha = .96$, for respectively the between and the within level). In our first model, we tested whether the relation between level of compensation and customer loyalty is moderated by product price by including interactions between the three dummy variables and both the linear and quadratic trend for level of compensation. We found that none of the product price dummies interacted with the linear (all *p*s > .35) or the quadratic trend (all *p*s > .33). In addition, none of the three dummy variables themselves had a significant effect (all *p*s > .78). We therefore collapsed our data across price levels. The subsequent analysis revealed a significant linear ($t(1396) = 5.49$, $p < .001$) and quadratic trend ($t(1396) = 7.44$, $p < .001$). This analysis further indicates that as the compensation level increased to about 168%, customer loyalty became more favorable, but it started to become less favorable after the 168% compensation level.

Finally, to formally test the existence of an inverted U-relation, we estimated in one overall analysis a model that approximates the quadratic relation with two linear relations (Simonsohn, 2016). Specifically, we estimated one linear relation on the basis of the data for the first three compensation levels and a second linear relation was estimated on the remaining four levels, by introducing a breakpoint that allowed for a different intercept and slope for the two regression lines. We selected this breakpoint because our previous analysis indicated that the 168% compensation

is the point with the highest customer loyalty – this optimal point lies between the third and fourth compensation level. An inverted U-relation is formally present if the slope of the first regression line is significantly positive and the slope of the second regression line is significantly negative (and significantly different from the slope of the first regression line; Simonsohn, 2016). Our results clearly support the existence of an inverted U: The slope of the regression covering compensation levels from 100% to 150% was significantly positive (b = .31, t(1396) = 5.48, p < .001), the slope of the regression covering compensation levels from 175% to 250% was significantly negative (b = -.14, t(1396) = 5.46, p < .001), and both slopes differed significantly (t(1396) = 7.88, p < .001).

Individual differences

To examine whether there are indeed individual differences in how customers react to increasing levels of overcompensation, we ran several additional multilevel models. First, we extended the random-intercept model (Model 1) described above to a random-slopes model (Model 2). This model allows the parameter for both the linear and the quadratic component of the relation between compensation and loyalty to vary across participants, but the individual parameters are assumed to be drawn from an overall normal distribution of parameters. In other words, even though there may be some variation across participants, the random-slopes model assumes that the participants represent a fairly homogeneous group. We therefore also estimated multilevel mixture models that assume that the participants are drawn from two (Model 3), three (Model 4), four (Model 5), or five (Model 6) latent classes. Table 1 gives the BIC values for the different models (lower values are better), as well as the test for the improvement in fit resulting from adding latent classes and, for models with more than one latent class, the entropy measure (which is a 0 to 1 measure that indicates the ease of classifying participants in the different classes with higher numbers representing better solutions).

Table 1. Estimated multilevel mixture models in Study 3.

Model #	Description	BIC	Lo-Mendell-Rubin Adjusted LRT Test	Entropy
1	Random intercept	5526.41	-	-
2	Random slope: 1 class	4400.42	-	-
3	Random slope: 2 classes	4341.29	85.82, $p < .001$	.870
4	Random slope: 3 classes	4280.80	79.29, $p = .028$	.938
5	Random slope: 4 classes	4259.19	49.60, $p = .028$	.936
6	Random slope: 5 classes	4269.93	60.32, $p = .10$	.938

The best-fitting model was a model with four latent classes: It had the lowest BIC and showed similar levels of entropy as the models with three and five latent classes. Moreover, the Lo-Mendell-Rubin test indicated that a model with four latent classes represented a significant improvement over a model with three classes, while a model with five classes was not significantly different from a model with four classes. Table 2 gives the parameter estimates for the four classes; Figure 4 shows the corresponding regression curves for each class.

Table 2. Parameter estimates (βs) for the four classes of individual differences in Study 3.

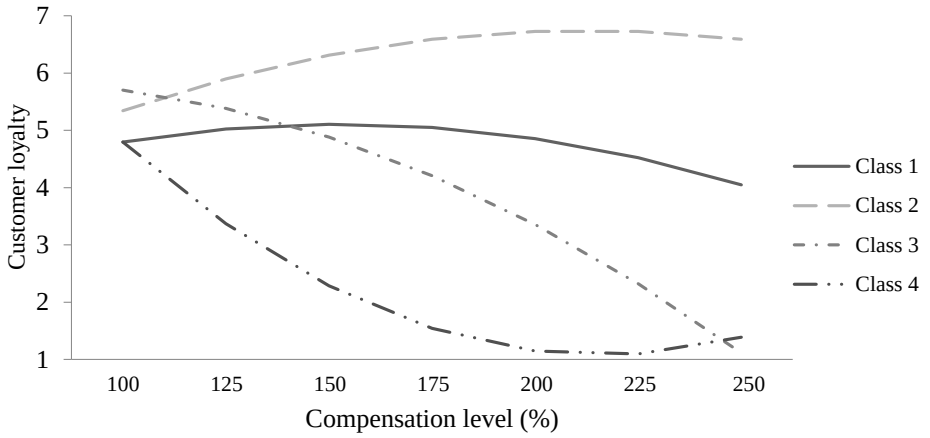
Latent class #	% of sample	Intercept	Compensation	Compensation^2
1	25.3	4.431	0.435	-0.070
2	57.1	4.652	0.760	-0.069
3	11.2	5.844	-0.053	-0.089
4	6.4	6.567	-1.944	0.172

There is little indication of an inverted U-function in any separate latent class (see Figure 4). Classes 3 and 4 showed a negative reaction to overcompensation, and differed only in how fast reactions became negative with increasing overcompensation. Consumers in Class 1 initially did not respond

strongly to overcompensation, but their reactions became more negative when the overcompensation was enlarged. Finally, the largest class (Class 2) consisted of consumers who responded positively to overcompensation, but their positive reactions leveled out (i.e., reached an asymptote) for very high levels of overcompensation. It is not clear, however, whether this leveling off was legitimate or rather due to a ceiling effect. Note that in none of the four classes there was a positive effect of extra compensation for the highest overcompensation levels.

Figure 4. Four different customer reactions to overcompensation in Study 3.

Note. The graph is based on the estimated means.



Discussion

The present study provides strong evidence for the general inverted U-shaped relationship between the level of overcompensation and the degree of customer loyalty, and this relationship holds for high and low failure magnitudes. More precisely, over the different product prices the optimal level of overcompensation was constantly situated around a compensation level that is equal to approximately 168% of the purchase price. Note that this threshold is somewhat higher than in the previous study, in which the ideal compensation level was already

reached at the level of 140%. After this threshold the curve decreased and the largest overcompensation levels (i.e., beyond 200%) even negatively affected customer loyalty. Moreover, our individual difference analysis revealed that four classes of customer reactions to increasing overcompensation could be identified, and in none of these classes this general pattern was observed. This result implies that the general inverted U-shape represents merely an average tendency across groups instead of a "real" psychological reaction that is shared by all consumers. In other words, customers do not react universally to different levels of overcompensation, as some react positive and others negative. However, and most importantly, all groups showed stagnation or a decline in loyalty at the higher ends of the range of overcompensations. The differences between classes are thus especially pronounced at the lower end of the overcompensation continuum, with some classes showing increased loyalty at this point, and others decreased loyalty.

Two limitations of the present study should be acknowledged. First, in the current study the overcompensation range (in steps of 25%) was rather large, and thus not very sensitive to unravel the optimal level of overcompensation. To overcome this limitation, in the next study we investigated the continuum using a much finer range, in small steps of only 10%. These more fine grained steps might shed a different light on the operation of individual differences in the context of mild overcompensations, which shows the greatest variability. Secondly, in the present study the compensation levels were presented to participants in a fixed order. In order to avoid potential sequential effects, the compensation levels were randomized in the next study.

Study 4

Method

Participants and design

The sample consisted of 128 US citizens (62 men, 66 women, M_{age} = 36.46, *SD* = 12.32), who were recruited through Amazon Mechanical Turk and participated in this scenario study in exchange for payment. Fourteen participants (10.9%) were excluded from further analyses because they failed on our check questions. To administer our compensation manipulation we employed a within-subjects design in which we included eight compensation levels (i.e., 100%, 110%, 120%, 130%, 140%, 150%, 160%, and 170% of the purchase price). Because the prior study showed there was no further increase in customer loyalty for overcompensations beyond the level of 168% (which was identified as the optimum), we did not include compensation sizes beyond this particular level in the present study.

Procedure

Participants read a scenario in which they imagined that they had bought a new espresso machine at a nearby store for the price of $100. In the present study we only included one product price, because in the previous study the compensation–loyalty relationship was not affected by the magnitude of the product failure. Participants imagined themselves that they came home and then realized that their espresso machine did not function properly. They thus decided to go back to the store to complain about this malfunctioning. Participants were asked to evaluate eight responses by which the store could react to this situation; each of these reactions presented a specific compensation level. Importantly, the different compensation levels were presented in a random order.

Measures

We used the same four items as in Study 1 to measure customer loyalty. In addition, to measure whether the compensation level manipulation was successful, we also probed participants' perception of the magnitude of the compensation. Therefore, we asked participants for each of the compensation levels: "To what extent do you find this compensation large?" (1 = *not at all*, 7 = *very much*).

Results

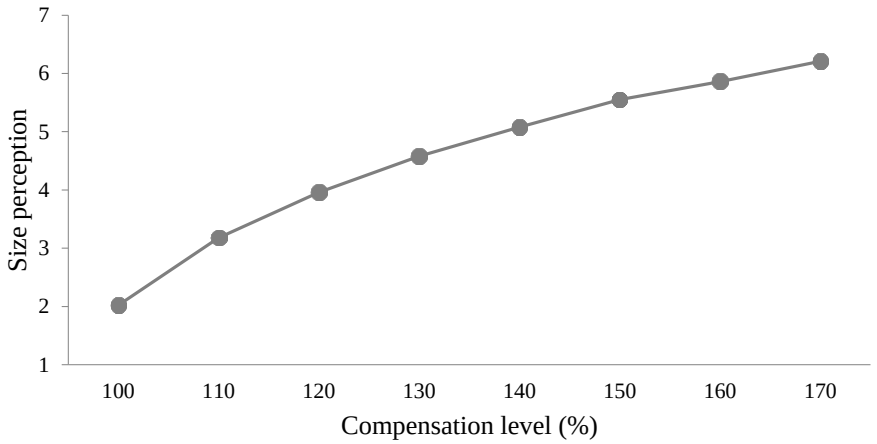
Similar to Study 3, most analyses were conducted using Mplus software. We again treated the independent variable, level of compensation, as a quantitative variable and we estimated the functional form of its effect by considering both a linear and a quadratic trend, using a regression approach. Because every participant responded to eight different compensation levels, we used a multilevel regression model with observations (level 1) nested in participants (level 2). To eliminate problems associated with small parameter estimates, we rescaled the compensation levels (100% to 170%) to an index variable (1 to 8). As in the previous study, this linear transformation did not affect any substantial result or statistical test.

Perception of compensation size

As a manipulation check, we first tested the effect of compensation level on perception of compensation size. The analysis revealed both a significant linear ($t(796) = 8.95$, $p < .001$) and quadratic trend ($t(796) = 4.74$, $p < .001$) for the relation between compensation level and size perception. Figure 5 reveals that individuals tend to view less difference between adjacent compensation levels as the compensation size becomes larger. This finding is in line with a host of research on the mental number line, showing a logarithmic relation between numbers and their mental representation (e.g., Dehaene, 1992; Nieder & Miller, 2003).

Figure 5. Relationship between compensation level and size perception in Study 4.

Note. The graph is based on the observed means: $M_{100\%} = 2.02$, $SD = 1.76$; $M_{110\%} = 3.18$, $SD = 2.14$; $M_{120\%} = 3.96$, $SD = 1.97$; $M_{130\%} = 4.58$, $SD = 2.04$; $M_{140\%} = 5.08$, $SD = 1.79$; $M_{150\%} = 5.55$, $SD = 1.68$; $M_{160\%} = 5.86$, $SD = 1.66$; $M_{170\%} = 6.21$, $SD = 1.42$.

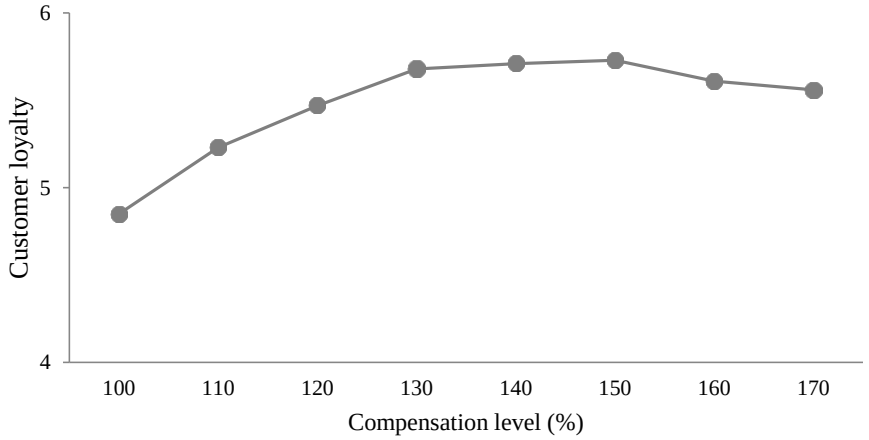


Curve progression

We subsequently analyzed the effect of compensation level on customer loyalty, which was again created on the basis of the repurchase, return, recommend, and patronage items ($\alpha = .99$ and $\alpha = .97$, for respectively the between and the within level). A one-way repeated measures ANOVA showed a significantly lower loyalty level for the compensation of 100% than for the other compensation levels (all *p*s < .001). Loyalty for the compensation level of 110% was significantly lower than for all the levels up to 160% (all *p*s < .05), and marginally different from the compensation level of 170%. Loyalty for the compensation level of 120% was significantly lower than for all the levels up to 150% (all *p*s < .05), but not different from the compensation levels of 160% and 170% (all *p*s > .26). Loyalty for the compensation levels from 130% to 170% did not significantly differ among each other (all *p*s > .10). This analysis thus reveals evidence for an increasing positive

reaction to overcompensation, which leveled off around compensation levels of 130%. As could be expected, the small range of overcompensations precluded us to substantiate the presence of an overall inverted U-reaction (see Figure 6).

Figure 6. Relationship between compensation level and customer loyalty in Study 4.
Note. The graph is based on the observed means: $M_{100\%} = 4.85$, $SD = 1.84$; $M_{110\%} = 5.23$, $SD = 1.70$; $M_{120\%} = 5.47$, $SD = 1.65$; $M_{130\%} = 5.68$, $SD = 1.59$; $M_{140\%} = 5.71$, $SD = 1.56$; $M_{150\%} = 5.73$, $SD = 1.56$; $M_{160\%} = 5.61$, $SD = 1.73$; $M_{170\%} = 5.56$, $SD = 1.81$.



We conducted a subsequent multilevel regression in Mplus to identify the optimal overcompensation level. This analysis revealed both a significant linear ($t(796) = 5.05$, $p < .001$) and quadratic trend ($t(796) = 4.93$, $p < .001$). Here, the optimal compensation level that resulted in the highest loyalty rating was identified at a compensation level of 146%.

Individual differences

To examine the presence of meaningful individual differences in the reactions to the various overcompensation levels, we ran several multilevel models. As in the prior study we first ran a random-intercept model (Model 1) and a random-slopes model (Model 2). Again, we also estimated multilevel mixture models that

assume that the participants are drawn from two (Model 3), three (Model 4), or four (Model 5) latent classes. Table 3 gives the BIC values for the different models, the test for the improvement in fit resulting from adding latent classes, and the entropy measure.

Table 3. Estimated multilevel mixture models in Study 4.

Model #	Description	BIC	Lo-Mendell-Rubin Adjusted LRT Test	Entropy
1	Random intercept	3002.02	-	-
2	Random slope: 1 class	2602.83	-	-
3	Random slope: 2 classes	2582.92	45.51, $p = .034$	.908
4	Random slope: 3 classes	2576.60	32.39, $p = .58$	.937
5	Random slope: 4 classes	2584.92	18.60, $p = .79$	.885

The model with two latent classes was selected as the best-fitting model. It had the second lowest BIC and almost the same entropy as the model with three latent classes. Moreover, the Lo-Mendell-Rubin test indicated that a model with two classes represented a significant improvement over a model with only one class, but the model with three classes was not better compared to the model with two classes. Moreover, the results of the three latent classes model revealed that the additional class consisted of only 2.6% of the participants, and that the other classes were basically similar as those from the two-cluster solution. Table 4 gives the parameter estimates for the two classes; Figure 7 shows the corresponding regression curves for each class.

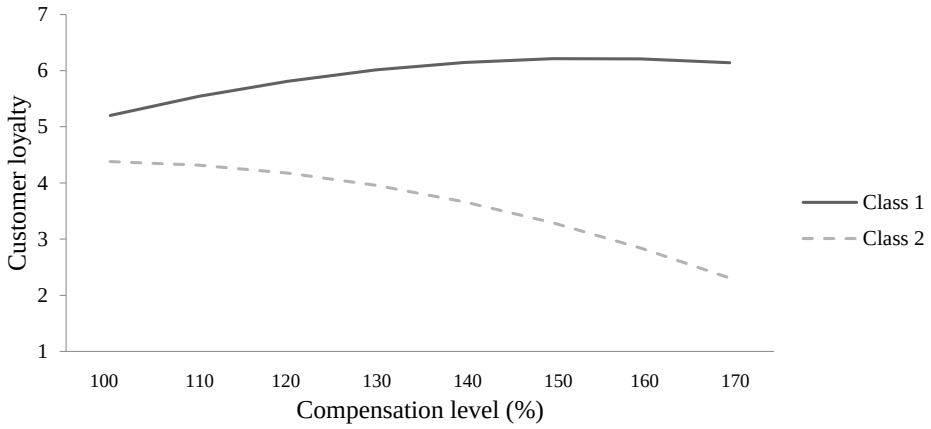
Table 4. Parameter estimates (*β*s) for the two classes of individual differences in Study 4.

Latent class #	% of sample	Intercept	Compensation	Compensation^2
1	84.2	4.796	0.440	-0.034
2	15.8	4.364	0.055	-0.039

As in Study 3, the largest class (Class 1) consisted of consumers who responded positively to overcompensation, but again their positive reactions leveled out (i.e., reached an asymptote) for higher levels of overcompensation. In this case, this leveling off does not seem to signal a ceiling effect, as there was still some room for more positive evaluations. Class 2 showed a negative reaction to overcompensation, which became even more negative with increasing levels of overcompensation.

Figure 7. Two different customer reactions to overcompensation in Study 4.

Note. The graph is based on the estimated means.



Discussion

In the current study we investigated the overcompensation continuum with smaller steps of 10%. Here, the optimum overcompensation level was reached at a compensation level that is equivalent to about 146% of the purchase price. Beyond this point customer loyalty again flattened. The use of moderate overcompensation levels precluded the presence of a downstream curve. Again, our findings revealed that there are individual differences in how people evaluate different compensation levels. As in the prior study, most consumers reacted positively to increasing overcompensation, at least to a certain level. In the present study not less than 84.2% of the customers showed this pattern, which is consistent with Study 3. Indeed, in Study 3 Classes 1 and 2, which included 82.4% of the participants, also showed higher loyalty levels in the low range of overcompensations. In the present study a smaller proportion of customers (15.8%) responded negatively to all forms of overcompensation, which mirrors the behavior of customers included in Classes 3 and 4 of Study 3 (17.6%), who showed a similar pattern.

General discussion

When products fail to live up to customers' expectations, companies can financially compensate these customers for their loss. Companies often choose to provide dissatisfied customers more compensation than required to undo the failure with the aim to further increase their loyalty. The aim of the present paper was to investigate in detail the effectiveness of monetary overcompensation as a means to enhance customer loyalty. Based on the current literature, it is still unclear whether in the high overcompensation range a saturation effect (leading to a flattening curve) or a true negative effect (resulting in a downstream curve) occurs. As such, our research responds to the request that additional research is needed to determine how much compensation is perceived as too much (see Davidow, 2003; Estelami & De

Maeyer, 2002; Gelbrich et al., 2015). Moreover, because it can be expected that customers do not react universally to increasing amounts of overcompensation, we also included a thorough analyses of individual differences.

Main conclusions

Across three studies the optimal level of overcompensation was always located around a compensation level that is equivalent to an average of about 150% of the purchase price of the faulty product (i.e., 140% in Study 2, 168% in Study 3, and 146% in Study 4). Note that in Study 1, which asked participants to provide ratings for only one compensation level, this optimum seems to be located further along the continuum. Taken into account that overcompensation is characterized by an open-ended interval which has no natural upper boundary, it can be concluded that the optimum level is situated at the rather low end of the continuum. Importantly, after this ideal point had been reached, the effect of overcompensation on customer loyalty was limited – and for more extreme overcompensation levels there was even an actual decrease in customer loyalty, which sharply contrasts with the standard economic notion that increasing levels of compensation would continue to produce higher levels of customer loyalty. As such, the present research has established the existence of an overall inverted U-relation between the amount of overcompensation and the degree of customer loyalty. These results corroborate ample previous compensation research that failed to report favorable effects of large overcompensation relative to equal compensation (e.g., see Estelami & De Maeyer, 2002; Garrett, 1999; Haesevoets et al., 2013, 2014; Noone & Lee, 2011).

We hypothesized that an inverted U-curve may arise because there are subsamples of customers that react differently to increasing levels of overcompensation. The present paper is the first, at least to our knowledge, to investigate individual differences in overcompensation effectiveness. We found similar patterns of rising and dropping curves in Studies 3 and 4. More specifically,

in line with the idea that humans are economic men, in both studies about 80% of the customers reacted positively to overcompensation by increasing their loyalty when the provided overcompensation enlarged, but this was only up to a certain point after which the curve flattened. Hence, even for customers who reacted positively to increasing overcompensation this effect was bounded. Or, stated otherwise, while it is true that the majority of people react as homo economicus, they do so only to a certain point, after which they seem fulfilled.

The overall decline in the high overcompensation range seems to be due to the fact that there was also a smaller group of customers (which included approximately 20% of all customers) that reacted negatively to every form of overcompensation, and, importantly, most of these customers' reactions became even more negative with increasing overcompensation. Our individual difference analyses thus entail that customers do not react universally to various overcompensations, but instead there is a large subgroup of customers that react positively and a smaller segment of customers that react negatively to increasing levels of overcompensation. Importantly, however, what seems to be universal is that all customer groups show stagnation or a decline in loyalty at the higher ends of the range of overcompensations, which further substantiates the central finding that high overcompensations do not yield any beneficial effect on loyalty.

Because in both studies there was no indication of an inverted U-function for the separate classes, the general curve represents an average tendency rather than a genuine psychological reaction, which has theoretical implications. For instance, we reasoned that returning a faulty product is associated with additional costs for the customer in terms of lost time and experienced inconveniences. Because of these additional costs, we argued that overcompensation should transcend the mere product price of a dissatisfactory product in order to further elicit loyalty. But after this level of overcompensation is reached, loyalty levels should drop. Whereas this

reasoning seems valid on the basis of the general curve across groups, close inspection of the specific curves in each of the four classes identified in Study 3 and the two classes in Study 4 revealed no such pattern. The absence of this curve in specific groups suggests that customers do not think in terms of such additional costs, or at least that such costs are not explicitly taken into account when making loyalty judgments.

Practical implications of the present research

It is important to realize that despite these robust individual differences in customers' reactions to various overcompensation levels, the general data pattern which consists of an inverted U still holds some important practical implications for companies, who often have no information regarding how an individual customer will react to a certain compensation level, and as such have to rely on general trends in customers' reactions.

Overcompensating dissatisfied customers entails high costs for companies because it is associated with incremental expenses. As our findings revealed that, in general, overcompensation only has beneficial effects on customer loyalty at the rather low end of the overcompensation continuum, the present research cautions companies that attempt to differentiate themselves by overcompensating customers for product failures. Companies should be aware that when the overcompensation exceeds the original purchase price with more than 50%, they are generally wasting money which does not further enhance loyalty for the largest group of customers, but instead even results in a decline for about one fifth of their customers. As such, more extreme overcompensations are not only not cost-effective but actually even cost-ineffective for companies. Knowledge of this upper threshold after which more compensation becomes too much is of vital importance as it will enable companies and marketers to realize an optimal allocation of their marketing budget and avoid inefficient spending on too large overcompensation.

Companies may be concerned about the costs and returns of overcompensation strategies. In this regard, it must be noted that although mild overcompensation generally has a significant positive influence on customer loyalty, the additional benefit on top of equal compensation is rather small. Indeed, corroborating previous compensation research (see Davidow, 2003; Gelbrich & Roschk, 2011, for overviews), our results revealed that for most customers equal compensation already resulted in a rather favorable situation in term of loyalty. A relevant question, therefore, is whether this rather small increase in customer loyalty is worth the extra cost that overcompensation entails. An overcompensation of 150%, for example, holds that, in addition to the reimbursement of the expenses, the company offers the customer an extra amount that is half as large as the damage suffered. This might not be a problem for companies when the magnitude of the failure is low, but when the monetary value of a dissatisfactory product is high, like in the automobile sector, the costs of overcompensation in absolute terms rapidly increase. The question whether overcompensation is a cost-effective repair strategy is one that each company should answer for itself; and the answer to this question might depend on other factors such as the competitiveness of the market and the status of the client (regular versus occasional customer).

Strengths, limitations, and recommendations

First of all, an important strength of the present research is that we used different methods of data collection as well as different study samples. That is, in Study 1 we used a between-subjects design to deliver the different compensation levels. In contrast, in Study 2 we employed the method of paired comparisons, whereas in Studies 3 and 4 participants rated each presented compensation level separately. In Studies 1, 3, and 4 the sample consisted of consumers that were recruited through Amazon's Mechanical Turk, which have been shown to be able to provide reliable and high-quality data (see Buhrmester et al., 2011; Hauser &

Schwarz, 2016). Study 2 was conducted among undergraduate university students. The fact that we could replicate the diminished effectiveness of large overcompensation using this divergence in methods, designs, and samples enlarges our confidence in the robustness of the reported findings.

A second strength of the present research is that we focused on customer loyalty as the outcome variable. Many previous compensation studies mainly focused on post-complaint satisfaction, a construct that has been defined very differently across different studies (Olsen & Johnson, 2003). Although we acknowledge that satisfaction is an important aspect of the recovery process, we believe that it is at least equally important to companies that customers are willing to recommend the company to others and to purchase products again – two critical elements of customer loyalty (see Lam et al., 2004; Webster & Sundaram, 1998).

A limitation of our research is that we relied on scenario-based experiments in which participants had to imagine receiving different amounts of compensation from a company. As with all research methodologies, scenarios yield advantages and disadvantages (see Carlsmith, Ellsworth, & Aronson, 1976). An important advantage of this method is that it enhances internal and statistical conclusion validity by controlling manipulated variables and by reducing random noise in the outcome measure (Cook & Campbell, 1979; Churchill, 1995). Yet, imagining receiving compensation might differ from actually receiving compensation. Future research should thus investigate whether the present results also apply when customers actually receive different levels of overcompensation in a field setting (cf. Garrett, 1999).

As a closing remark, we would like to mention that an important factor that may influence customers' reactions towards overcompensation is whether a company recalls a defective product or whether the customer him- or herself has to detect that a product is defective. In this light, it can be expected that the costs for

the customer may be lower when the company recalls a product, because under such circumstances a part of the fault-finding expenses and inconveniences have already been carried out by the company. As such, the optimal compensation level might also be smaller when companies themselves recall faulty products, and therefore be located earlier on the overcompensation continuum. We believe that the investigation of overcompensation effects under such conditions provides an interesting avenue for future compensation research.

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Chapter 6

Low-Price Guarantees as Advertisement Strategy and Compensation Policy: The More, the Better?

Abstract

Companies sometimes employ a "lowest price or *more* than the difference back" policy (i.e., a *price-beating* guarantee). We investigated whether such a policy is more effective to attract and retain customers than when the exact price difference is promised (i.e., a *price-matching* guarantee). The first study revealed that about 60% of the marketers and shop owners in our sample thought that beating price differences is a more effective strategy than matching price differences. However, the four subsequent studies challenged this assumption. Specifically, the advertisement as well as the provision of price-beating refunds did *not* have an incremental positive effect on customers' general attitudes in terms of trust, brand perception, loyalty, and shopping intentions beyond the level that was already reached by price-matching refunds. Moreover, our mediation analyses revealed that the null effect of price-matching versus price-beating was mediated by fairness perceptions. From a theoretical perspective, these results are in line with a fairness account which holds that people do not only evaluate the economic value of an outcome, but also take equality considerations into account. Because price-beating is literally more expensive than price-matching, from a practical point of view, companies should be informed that the employment of a price-beating guarantee is a cost-*in*effective advertisement strategy and compensation policy.

This chapter is based on Haesevoets, T., Van Hiel, A., Onraet, E., Joosten, A., & De Cremer, D. (in press). Low-price guarantees as advertisement strategy and compensation policy: The more, the better. *Journal of Consumer Behaviour*.

Introduction

Imagine that you can buy a new refrigerator in two stores in your neighborhood. The first store advertises that when you find the same fridge for a lower price in any other store, you will get paid back the exact amount of the price difference. The second store, however, advertises that in case of a price difference, you will be compensated twice the price difference. Which of these two stores would you prefer? Now imagine that there is a third store that advertises to triple or even tenfold the price difference. Would you be more inclined to go to this third store? From the viewpoint of a "homo economicus" the latter store should be preferred because it offers the highest refund and thus also the highest monetary profit.

The strategy to promise customers to pay more than the difference when another store sells the exact same item for a lower price has been employed by many companies for a long time. For example, the baby products retailer Babies"R"Us has published an advertisement on its website which stated the following: "Spot a lower price for baby gear? We will beat it by 10%." The Good Guys, a chain of consumer electronics retail stores in Australia, currently employs a similar low-price guarantee, beating price differences by 20%. Yet, there are also companies that employ larger low-price guarantees. For instance, the car repair shop Tires Plus employs a double-the-difference-insurance policy. That is, this company advertises that: "If you find a better price within 30 days of purchase, we'll give you twice the amount of the difference back." Furthermore, in reaction to the price war among supermarkets in 2011, Tesco promised to reimburse shoppers twice the difference for products found cheaper at Wal-Mart owned Asda. Some companies promise customers to triple price differences. The Walking Company, for example, advertises: "If you purchase shoes from us at regular price and see them advertised for less, we'll give you triple the difference in store credit." Similar strategies have been employed in the past. On January 13, 1982, in an advertisement published in

the newspaper The Palm Beach Post from West Palm Beach, the American drug store SupeRx announced to triple the price difference in cash when customers found a product cheaper in any other store in town by advertising: "Lowest overall prices guaranteed every day or you get triple-the-difference in cash!" Some companies even go a step further. At the end of 2014, in two of its Belgian stores, the French grocery giant Carrefour advertised to pay shoppers five times the difference if beaten on price by the Dutch supermarket chain Albert Heijn. Similarly, during the summer of 2016 Carrefour promised customers to pay them back five times the price difference on school material. Earlier, Carrefour even offered customers up to ten times the price difference for toys bought during the Christmas season.

A low-price guarantee can be defined as a policy in which a company announces to offer the lowest possible price for certain products and promises to *match* or *beat* competitors' lower prices for these products (see Biswas, Pullig, Yagci, & Dean, 2002; Sivakumar & Weigand, 1996). Two types of low-price guarantees can thus be identified: (1) The *price-matching* guarantee, where the customer is refunded the *exact* price difference, and (2) the *price-beating* guarantee, where the customer is refunded *more* than the price difference. The examples mentioned above illustrate that in the last few decades companies worldwide have employed "lowest price or *more* than the difference back" advertisement strategies in the battle to attract new and maintain existing customers. In spite of the widespread use of such price-beating refunds, empirical work on this topic is rather scarce (see Kukar-Kinney, 2006; Kukar-Kinney & Walters, 2003; Kukar-Kinney, Walters, & MacKenzie, 2007; Kukar-Kinney, Xia, & Monroe, 2007; for some notable exceptions). The aim of the present research was to gain a deeper understanding of the (cost) effectiveness of price-matching and price-beating guarantees.

We first examined the thoughts of marketers and shop owners on this matter. Do they believe that beating price differences is an effective strategy to attract and retain customers? Next, we investigated whether the announcement of a price-beating refund is indeed an effective strategy to attract customers. Specifically, we compared matching refund and beating refund conditions with respect to customers' trust, brand perception, loyalty, and shopping intentions. Importantly, companies do not only promise different refunds, but also provide such refunds to their customers when price differences actually occur. Therefore, we also examined whether the provision of a price-beating refund in reaction to a price difference is more effective than the offer of a price-matching refund.

Price-beating refunds from the perspective of the customer and the company

From the perspective of the (potential) customer a low-price guarantee that promises to beat instead of match price differences is better, because in case of an actual price difference the price-beating guarantee leads to a higher outcome for the customer. This reasoning is in line with the classic economic theory, which assumes that individuals are primarily motivated by earning money and by the possibility of making profits. Following such a calculative perspective, there should thus be a positive relationship between the depth of a refund and customers' favorable reactions towards the store. Based on this "more is better" assumption, it can hence be expected that customers will have a higher intention to purchase products at a company when it advertises to beat a price difference compared to when a matching refund is promised.

Yet, it is important to highlight that for companies price-beating strategies are less attractive because they are more expensive. That is, a price-beating guarantee entails additional costs on top of the costs of a price-matching guarantee when price differences actually occur. Indeed, in case of an actual price difference, providing a price-beating refund is literally more expensive for a company than

providing a refund that matches the difference. In this regard it is thus important to investigate whether such costly price-beating guarantees are actually a more effective strategy to attract and retain customers than less costly price-matching guarantees. Two important functions of low-price guarantees can be distinguished. First, a company can advertise the employment of a price-matching or a price-beating guarantee with the aim to attract customers to its business. Secondly, a company can provide customers who actually bought a product and then found it cheaper elsewhere a price-matching or a price-beating refund in order to retain this customer. In what follows, we will give an overview of previous research on the effectiveness of price-beating refunds as a means to *attract* and *retain* customers.

Are price-beating refunds effective to attract customers?

The vast majority of the previous research on low-price guarantees has investigated how the presence versus absence of a price-matching guarantee impacts upon customers' reactions (e.g., Biswas et al., 2002; Jain & Srivastava, 2000; Lurie & Srivastava, 2005; Srivastava & Lurie, 2001, 2004). These prior studies have, for example, shown that consumers interpret the presence of a price-matching policy as a signal of low store prices (Jain & Srivastava, 2000). In addition, the presence of such a policy also increases the likelihood that customers will discontinue searching for lower prices (Srivastava & Lurie, 2001).

With the exception of the research conducted by Kukar-Kinney and colleagues, it should be noted that not many studies have delved into how refund depth – in terms of *matching* versus *beating* price differences – influences customers' responses. Kukar-Kinney and Walters (2003) reported that a price-beating guarantee increased consumers' perceptions of the value of this guarantee as compared to matching price differences, but at the same time reduced its believability. Moreover, Kukar-Kinney (2006) found that customer loyalty was not enhanced in the price-beating relative to the price-matching guarantee condition.

Research by Kukar-Kinney, Walters, and MacKenzie (2007) further revealed that individual differences in customers' price consciousness interacted with refund depth. Specifically, only customers with high levels of price consciousness expressed a substantial greater likelihood of buying at a store that promised a price-beating refund than at a store that promised a price-matching refund.

It is important to note that prior empirical studies all included a rather small price-beating refund level that typically transcended the lower price by at most 20%. However, as illustrated by the above mentioned examples, in real-life settings refunds that are two, five, or even ten times as large as the price difference have been prevalently applied by companies like Tesco and Carrefour. It is, however, still unclear how the promise of such large price-beating refunds is evaluated by customers. This is important to investigate because pronounced price-beating refunds might entail high costs for companies when actual price differences occur. Consequently, if customers' purchase intention is not positively affected by it, then companies would have no incentive to employ such large price-beating guarantees. Instead, it would even be more cost-effective for a company to simply match a price difference than to beat it.

Are price-beating refunds effective to retain customers?

Low-price guarantees are not only used by companies to attract new customers, but also as a compensation policy for existing clients. To the best of our knowledge, no prior studies investigated the effect of actually receiving a price-beating refund on customers. Is a customer more inclined to revisit a store after receiving a price-beating instead of a price-matching refund? A line of inquiry that may inform us about the effectiveness of receiving price-beating refunds involves research in the domain of overcompensating dissatisfied customers. Overcompensation occurs when a company offers a customer a refund that is larger than the purchase price of a failed product or service. This is conceptually related to

price-beating refunds in the sense that both concepts include the provision of a refund that exceeds a certain threshold, that is, the original purchase price in case of an overcompensation and the price difference in case of a price-beating refund.

The results of prior overcompensation studies, however, are not very consistent. Some studies revealed positive effects of receiving overcompensation. For instance, Boshoff (1999) found in the context of an airline company that a refund of expenses plus an additional free airline ticket enhanced customers' satisfaction more than when merely the expenses were reimbursed. A similar positive effect of receiving overcompensation was obtained in the context of a hotel (Gilly & Hansen, 1985) and a restaurant (Hocutt, Bowers, & Donavan 2006). Yet, there is also some evidence that overcompensation can be ineffective, and sometimes even counterproductive. Garrett (1999), for example, found that overcompensating customers for a product that did not perform as expected had no significant positive effect relative to exact compensation in terms of enhanced satisfaction and repurchase intention. Likewise, Noone and Lee (2011) reported that overcompensation did not positively enhance customers' return intention beyond exact compensation in the aftermath of a hotel overbooking. Moreover, Estelami and De Maeyer (2002) reported that although low and moderate levels of overcompensation were acceptable to most customers, high levels resulted in a drop of customer satisfaction.

Recently, scholars have tried to resolve these mixed results by systematically studying the overcompensation range by examining the influence of multiple refund depth levels. Gelbrich, Gäthke, and Grégoire (2015), for instance, compared five overcompensation levels (i.e., a compensation that covered 120%, 140%, 160%, 180% and 200% of the loss) that a company could offer for a flawed service. Their results revealed a non-linear effect of overcompensation on customer satisfaction in the form of a concave curve: Small amounts of overcompensation

were more effective than an exact compensation, but after a certain point the curve seemed to flatten. Similar findings were obtained in a series of studies by Haesevoets, Van Hiel, Pandelaere, Bostyn, and De Cremer (in press). These authors reported that in the aftermath of a product failure the overcompensation–loyalty curve first goes upwards, but only up to a compensation level that is equivalent to approximately 150% of the purchase price of a dissatisfactory product. After this threshold had been reached, the effectiveness of overcompensation declined as further overcompensation started to negatively affect customer loyalty, resulting in an actual downstream curve.

A possible explanation for the lack of positive results obtained with substantial overcompensations in prior research (see Estelami & De Maeyer, 2002; Garrett, 1999; Haesevoets et al., in press; Noone & Lee, 2001) might be that in these studies the refunds were provided unexpectedly. Such an unexpected large reimbursement may trigger cognitive processes that question the nature of and motivation behind the refund. There is some preliminary evidence which suggests that customers indeed perceive an unexpected large refund to be suspicious, leading to negative evaluations of the provider of this refund (Estelami & De Maeyer, 2002). Similarly, scholars have argued that customer judgments regarding the ethical standards of a company may be negatively affected by the experience of an unusual event − such as unexpectedly receiving a large refund − which may in turn compromise customers' trust in and loyalty towards the company (see Bigley & Pearce, 1998; Doney & Cannon, 1997; Garbarino & Johnson, 1999).

Importantly, when the provision of a substantial compensation under the form of a price-beating refund is announced through an advertisement strategy, it will not be experienced as unusual, and therefore may lead to more favorable customer reactions. Yet, no prior studies explicitly focused on the effects of receiving a refund that largely beats a price difference. Given the prevalent use of

such refunds, and the fact that they can be costly for companies, it is of vital importance to unravel how different refund levels influence consumers' impressions of and responses to companies.

The present studies

The effectiveness of low-price guarantees was investigated in five empirical studies. In Study 1 we investigated a sample of marketers and shop owners to study their beliefs about the announcement of a price-beating refund, and whether they thought that this is a more effective strategy to attract and maintain customers than the announcement of a price-matching refund. In the four subsequent studies we investigated the effectiveness of both refunds types by using scenario-based experiments in samples of consumers. More specifically, we examined if customers' trust in the company, brand perception, loyalty, and shopping intentions were enhanced more when a company announced to beat a price difference rather than to match it (Studies 2a and 3a). Moreover, we also explored if in case of a price difference the provision of an announced price-beating refund improved these outcome measures beyond the level that was reached by a price-matching refund (Studies 2b and 3b). The present studies extend previous research on low-price guarantees in at least four important ways.

First, and most importantly, it can be expected that companies employ a price-beating guarantee because they believe that this is an especially effective strategy to attract customers to their business. However, it is at least equally important to evaluate the effectiveness of price-beating policies in stimulating the retention of existing customers. In this regard, an important feature of our research is that we investigated the effectiveness of price-beating and price-matching guarantees as an advertisement tool to attract customers as well as a compensation policy to maintain customers. To our knowledge, this latter component has not yet been studied in the context of low-price guarantees.

Secondly, the few studies that reported on effects of beating price differences only included one level of refund depth besides the matching condition that served as a baseline (see Kukar-Kinney, 2006; Kukar-Kinney & Walters, 2003; Kukar-Kinney, Walters, & MacKenzie, 2007; Kukar-Kinney, Xia, & Monroe, 2007). Our study took multiple refund levels into account. As mentioned above, most of this prior research included price-beating refunds that are much smaller than the ones that companies often provide. An unique feature of the present study, therefore, is the inclusion of three price-beating refund levels that cover the price difference one and a half times, two times, and five times (i.e., a refund that is equivalent to 150%, 200%, and 500% of the price difference, respectively). We included the refund level of 150% because this level was identified as optimum in the studies of Haesevoets et al. (in press) on overcompensation. The two larger refund levels, that is, 200% and 500%, reflect the magnitude of the price-beating guarantees often employed by companies, such as Tesco and Carrefour.

While prior studies offer valuable insights into how customers respond to price-matching versus price-beating guarantees, customers' perceived fairness of different low-price guarantees has not yet been investigated (see Kukar-Kinney, Xia, & Monroe, 2007, for a notable exception). This is regretful because the perceived fairness of a low-price guarantee might have an influence on customers' repurchase intentions. In this light, recent overcompensation studies have found that fairness perceptions mediate the relationship between overcompensation and customer satisfaction (see Gelbrich et al., 2015). Therefore, in the present research we also investigated if and how fairness perceptions influence the effectiveness of different low-price guarantees.

Finally, although a first reason to introduce low-price guarantees might be to convince consumers that the store offers the lowest price (see Jain & Srivastava, 2000), it can be argued that other (more distal) customers' impressions and reactions

are important as well. To tap into these reactions, we included trust, brand perception, customer loyalty, and shopping intentions as outcome measures in our studies. Importantly, these concepts can all be seen as critical factors that influence customers' choice for a particular store (for more information on the inter-relationship between these concepts, see Martenson, 2007; Sirdeshmukh, Singh, & Sabol, 2002).

Study 1

Method

Participants

A sample of 16 marketers and 27 shop owners (N = 43; 65.1% men; M_{age} = 35.60, SD = 9.98) were recruited through Amazon Mechanical Turk (Mturk). This platform has been demonstrated to be an appropriate method of recruiting subjects (see Buhrmester, Kwang, & Gosling 2011; Hauser & Schwarz, 2016). Participants participated in an online survey study in exchange for payment ($0.50). All participants were US citizens who worked at least one year as a marketer or a shop owner; during the survey multiple questions were asked to verify that this was indeed the case. Participants worked an average of 6.72 years (SD = 6.72) as marketer or shop owner and an average of 5.44 years (SD = 5.78) in their current function. On average, participants worked 43.70 hours (SD = 19.18) per week. With regard to educational level, 2.3% of the participants had no degree, 39.5% a high school degree, 53.5% a Bachelor's degree, and 4.7% a Master's degree.

Procedure

Participants read a text which presented two related situations in which it was stated that customers who purchase a product often compare prices among different stores. A store can promote its business by announcing a reimbursement when a customer finds another store that offers cheaper prices. We first asked

participants to indicate what they thought would be the best advertisement strategy to attract new customers to their business. Next, we asked participants to indicate what they thought the best strategy would be to retain a customer who actually bought a product and then found it cheaper elsewhere. In both situations, participants had to choose one the following response options which reflect four different refund depths. The first option was a reimbursement that is equal to the price difference between the two stores (i.e., 100% of the price difference, which reflects a *price-matching* guarantee), whereas the latter three options all embodied reimbursements that are larger than the price difference (i.e., > 100% of the price difference, which reflect *price-beating* guarantees). More specifically, the three price-beating refund options covered the price difference one and a half times, two times, and five times (i.e., 150%, 200%, and 500% of the price difference, respectively). After participants had indicated their preference, for each situation they were asked (through an open question) why they thought that the chosen strategy is most effective to attract and retain customers.

Results

Preference for price-matching or price-beating

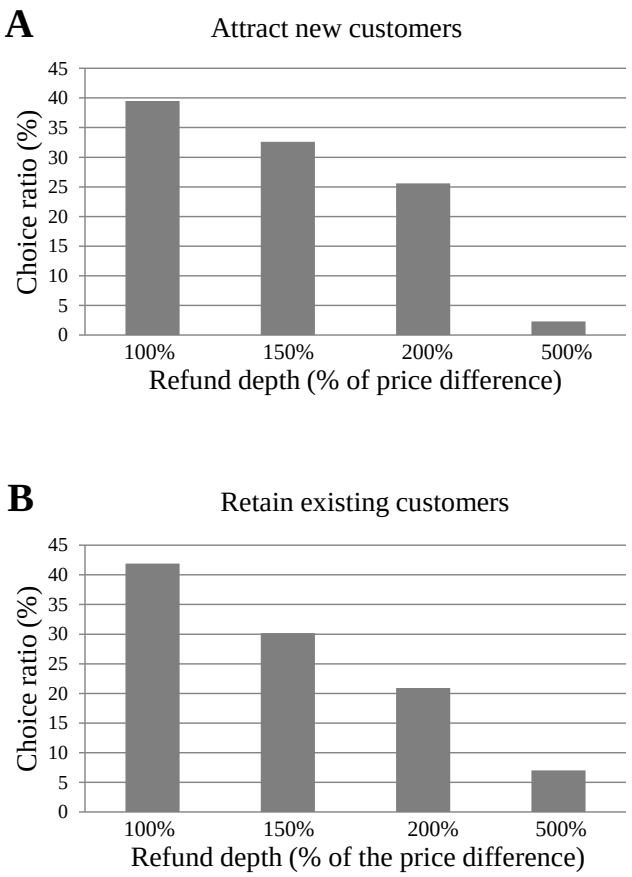
Figure 1 shows the results for the use of price-matching and price-beating guarantees as an advertisement strategy to attract new customers (Panel A) and as a compensation policy to retain existing customers (Panel B). No less than 60.5% of the marketers and shop owners judged one of the price-beating options as the most effective advertisement strategy to attract customers, while the remaining 39.5% of them preferred the price-matching option. Moreover, among the price-beating options, most participants preferred a refund that covered the price difference one and a half times (32.6%), followed by the option that reflected a refund that covered the price difference two times (25.6%) and five times (2.3%). On the question which refund would be the most effective policy to retain customers, 41.9% of the

marketers and shop owners chose the price-matching option and 58.1% one of the price-beating options. Here too, with regard to the different price-beating options, most participants preferred a refund that covered the price difference one and a half times (30.2%), followed by a refund that covered the price difference two times (20.9%) and five times (7.0%). Preferences for refund levels to attract and retain customers correlated strongly (r = .82, p < .001). When looking at the data for marketers and shop owners separately, similar data patterns were obtained.

Reasons behind the preference for price-matching or price-beating

Marketers and shop owners' answers to the open question regarding the most effective strategy to attract new customers revealed nine reasons (only the reasons that were mentioned by at least two participants are reported). The following five reasons were identified for the 17 participants who selected price-matching as the most effective strategy to attract new customers: Matching price differences is sufficient (n = 4), the customer can be confident that he or she gets a good deal (n = 4), giving more is not profitable (n = 3), competition with other stores over prices is unwanted (n = 3), and this strategy is most fair (n = 2). For the 26 participants who selected one of the price-beating strategies as the most effective strategy to attract new customers, the following four reasons were identified: Making the violation right requires giving (a little) extra (n = 6), it is an attractive strategy that draws attention (n = 3), it assures customers that they get the lowest price (n = 2), and it shows that the company cares for the customer (n = 2). The open question regarding the most effective compensation policy to retain existing customers revealed very similar reasons as the ones reported here.

Figure 1. Percentage of respondents who have chosen each of the compensation options as most effective advertisement strategy to attract new customers (Panel A) and as most effective compensation policy to retain existing customers (Panel B) in Study 1.



Discussion

The present study indicates that in our sample about 60% of the marketers and shop owners indicated that a price-beating guarantee would be the best approach to attract new customers as well as to maintain existing customers to their business.

Note that this finding also entails that 40% of our respondents did not believe that price-beating is superior to price-matching. However, for those who preferred price-matching, frequently mentioned reasons referred to matching as "being enough" and to the "profitability" of this strategy, which seems to suggest that the additional costs of price-beating might have influenced marketers and shop owners' choices. That is, many among those preferring price-matching do not seem to discount the effectiveness of the price-beating strategy, but they are concerned about the extra costs.

Because beating a price difference is expensive for companies, the question that arises is whether price-beating guarantees are indeed well received by potential customers. The next study was set up to answer this research question. This question is important to investigate because it is only cost-effective for companies to beat price differences if price-beating guarantees are more effective to attract customers than price-matching guarantees. If price-beating is just as effective (or possibly even less effective) than price-matching, companies would have no incentive to employ such a strategy.

Study 2a

Method

Participants and design

A total of 147 US citizens (55.1% men; M_{age} = 36.39, *SD* = 11.96), recruited through MTurk, completed an online scenario study in exchange for payment ($0.50). To safeguard data quality, we implemented multiple attention checks spread throughout the study. In total, 25 participants (17.0%) were excluded from further analyses. Of these participants, 11 were excluded because they indicated to be a marketer or a shop owner. An additional 12 participants were excluded because they were unable to answer our refund depth manipulation check correctly, and an extra

two participants because they failed on our attention checks. Of the remaining 122 participants, 0.8% had no degree, 30.3% had a high school degree, 55.7% a Bachelor's degree, 9.8% a Master's degree, and 3.3% a PhD degree.

Participants were randomly assigned to one condition of a 5-level (refund depth: 0% vs. 100% vs. 150% vs. 200% vs. 500% of the price difference) between-subjects design. Hence, in addition to a price-matching condition (100%) and three price-beating conditions (150%, 200%, and 500%), we also included a control condition in which no low-price guarantee was offered by the store (0%). Although the explicit statement of no low-price guarantee in the control condition might be somewhat unusual, the inclusion of this condition is important in order to be able to unravel the true value of the different refund depth effects.

Procedure

To administer our refund depth manipulation, participants read a scenario which presented them with a store advertising that in a situation in which a customer purchases a product at their business and then finds it cheaper in another store, this company will (not) reimburse this customer. More specifically, in the control condition it was stated that the company will not reimburse customers for price differences. In the *price-matching* condition the company will compensate customers with a refund that exactly covers the price difference (i.e., 100% refund depth condition). Finally, in the three *price-beating* conditions the company will reimburse customers with a refund that covers one and a half times the price difference in the 150% refund depth condition, two times the price difference in the 200% refund depth condition, and five times the price difference in the 500% refund depth condition.

Measures

Manipulation and realism check. To verify that participants noticed the refund depth manipulation successful, we asked them, "The store advertises that in

case of a price difference the store will pay the customer back … the price difference" (0 times; 1 time; 1.5 times; 2 times; 5 times). As mentioned above, participants who were unable to identify the correct refund level were not included in the analyses. We also measured the mundane realism of the presented scenario with the following item, "To what extent could you imagine the described situation?" (1 = *not at all*, 7 = *very much*; $M = 4.91$, $SD = 2.11$). A one sample t-test revealed that the mean score on this realism check significantly differed from the scale's midpoint ($t(121) = 4.77$, $p < .001$), which indicates that the scenarios were viewed as realistic by the participants.

Outcome measures. The outcome measures were all measured using seven-point Likert scales (1 = *strongly disagrees*, 7 = *strongly agree*). First, participants' trust in the store was probed with the eight-item trust scale of Zhang and colleagues (2011), of which a sample item is, "I think that this store has high integrity." Brand perception was then measured using the five-item scale developed by Bayol, de la Foye, Tellier, and Tenenhaus (2000). A sample item of this scale is, "I think that this store has a positive image." We also used the five-item customer loyalty scale of Lam, Shankar, Erramilli, and Murthy (2004) to probe participants' recommendation and purchase intentions, which are two central dimensions of the customer loyalty construct. A sample item is, "It is likely that I will recommend other people to purchase products at this store." Shopping intentions were finally measured with the three-item scale of Kukar-Kinney, Xia, and Monroe (2007), of which a sample item is, "It is very likely that I would shop at this store." Table 1 provides the means, standard deviations, and Cronbach's alphas for each of these outcome measures.

Table 1. Means, standard deviations, Cronbach's alphas, and correlations (Study 2a).

Measure	*M*	SD	*α*	1.	2.	3.	4.
1. Trust	5.25	1.58	.97	-			
2. Brand perception	5.04	1.65	.95	.92***	-		
3. Customer loyalty	5.06	1.83	.97	.89***	.93***	-	
4. Shopping intentions	5.41	1.75	.95	.84***	.84***	.92***	-
5. General attitudes	5.18	1.62	.99	.97***	.97***	.97***	.92***

Note. *** $p < .001$.

Results

Correlation analysis and factor structure

The correlations between the four outcome measures were all positive and significant (all *r*s > .84; all *p*s < .001; see Table 1). Because of these high correlations, and the fact that in prior studies similar concepts have been collapsed into one general measure (e.g., see Ambrose, Hess, & Ganesan, 2007), we checked whether the different outcome measures loaded on one single underlying attitudinal dimension by conducting a Principal Component Analysis. Only one component with an eigenvalue greater than 1.00 was found. This component had an eigenvalue of 16.41 and explained 78.1% of the total variance. Based on this one strong factor we have chosen to collapse the items of the four outcome measures into one general measure that reflects participants' general attitudes towards the store (see Table 1).

General attitudes towards the store

A 5-level (refund depth: 0% vs. 100% vs. 150% vs. 200% vs. 500%) ANOVA on the general attitudes scale showed a significant main effect of refund depth, $F(4, 117) = 16.49$, $p < .001$, $\eta^2_p = .36$. We subsequently conducted a post-hoc test (LSD) in order to investigate which of the refund depth conditions significantly

differed from each other. The results of these comparisons are displayed in Table 2. This table reveals that only the 0% refund depth condition ($M_{0\%}$ = 3.21, *SD* = 1.71) differed significant from all the other refund depth conditions ($M_{100\%}$ = 5.37, *SD* = 0.87; $M_{150\%}$ = 5.72, *SD* = 1.21; $M_{200\%}$ = 5.90, *SD* = 1.46; $M_{500\%}$ = 5.57, *SD* = 1.23). The price-matching condition did *not* differ significantly from the three price-beating conditions. ANOVAs and subsequent post-hoc tests for the individual trust, brand perception, loyalty, and shopping intentions scales revealed similar results as the ones reported here for the total scale.

Table 2. Results of post-hoc test (Study 2a).

Contrast	General attitudes		
	Δ*M*	SE	*p*
0% vs. 100%	-2.16***	0.38	<.001
0% vs. 150%	-2.51***	0.38	<.001
0% vs. 200%	-2.70***	0.38	<.001
0% vs. 500%	-2.37***	0.38	<.001
100% vs. 150%	-0.35	0.37	.349
100% vs. 200%	-0.53	0.37	.153
100% vs. 500%	-0.21	0.37	.575
150% vs. 200%	-0.18	0.38	.627
150% vs. 500%	0.14	0.38	.704
200% vs. 500%	0.33	0.38	.385

Note. *** $p < .001$.

Discussion

The present study revealed that when a store advertises to beat price differences, customers' general attitudes in terms of trust, brand perception, loyalty, and shopping intentions were not significantly improved compared to when it was announced that price differences would be matched. Thus, although the presence (versus absence) of a low-price guarantee is able to positively affect customers' responses, matching a price difference seems to be just as effective as beating this difference.

However, it is possible that although the advertisement of a price-beating refund does not attract more customers, providing such a refund will result in a higher *re*purchase intention. This research question was investigated in the next study in which we examined the effectiveness of price-beating refunds as a compensation policy to retain customers.

Study 2b

Method

Participants and design

A total of 299 US citizens (43.1% men; M_{age} = 39.78, *SD* = 12.71), recruited through MTurk, completed an online scenario study in exchange for payment ($0.50). Here, a total of 16 participants (5.3%) were excluded from further analyses. Ten participants were excluded because they indicated to be a marketer or a shop owner. An extra four participants were excluded because they were unable to answer our manipulation checks correctly, and two additional participants because they failed on our attention checks. Of the remaining 283 participants, 0.7% had no degree, 36.7 % a high school degree, 46.6% a Bachelor's degree, 13.4% a Master's degree, and 2.5% a PhD degree.

We included the same five refund levels as in the previous study. Moreover, because in case of a price difference the magnitude of the product price might alter customers' responses towards the store (see Garret, 1999; Smith, Bolton, & Wagner, 1999), in the present study we also manipulated the size of the product price by including a product with a rather low price ($50 product, with a price difference of $10) and a product with a much higher price ($500 product, with a price difference of $100). In the present study participants were thus randomly assigned to a 2 (product price: $50 vs. $500) × 5 (refund depth: 0% vs. 100% vs. 150% vs. 200% vs. 500% of the price difference) between-subjects design.

Procedure

As in the previous study, participants first read a scenario which presented them with a store advertising that when a customer purchases a product at their business and finds it cheaper at another store, the store will not reimburse this customer in the no refund condition; whereas in the refund conditions a compensation that exactly, one and a half times, two times, or five times covers the price difference was promised. Subsequently, participants were asked to imagine that their old blender [refrigerator] broke down and that they decided to go to this specific store for the purchase of a new one. Here, they bought a new one for the price of $50 [$500]. Later, they discovered that another store sells exactly the same blender [refrigerator] for only $40 [$400], which is thus $10 [$100] less than they paid. Participants were then asked to imagine that the store provided participants no refund in the control condition. In the 100% refund depth condition participants were offered a refund of $10 [$100], which thus exactly covered the price difference between the two stores. In the 150% refund depth condition participants received an additional refund of $5 [$50] on top of the price difference of $10 [$100], which is thus a reimbursement that covers the price difference one and a half times. A total refund of $20 [$200], which is two times as large as the price difference, was offered

in the 200% refund depth condition. Finally, in the 500% refund depth condition a total reimbursement of $50 [$500], which covered five times the price difference, was provided.

Measures

Manipulation checks and realism check. We first checked if participants were able to correctly identify the price of the product for which the price difference occurred, by asking them, "How much did you pay for the product?" ($50; $500). Next, to verify that participants perceived the refund depth manipulation successful, they were asked, "After finding a product cheaper elsewhere, the store payed you back … the price difference" (0 times; 1 time; 1.5 times; 2 times; 5 times). As mentioned above, participants who were unable to answer these manipulation checks correctly were excluded from the analyses. The realism of the presented scenario was probed with the same item as in Study 2a (M = 5.08, SD = 1.94). Again, a one sample t-test revealed that the mean score on this item differed significantly from the scale's midpoint ($t(282) = 9.41$, $p < .001$). The scenarios were thus viewed as realistic by the participants.

Outcome measures. Trust (8 items), brand perception (5 items), customer loyalty (5 items), and shopping intentions (3 items) were probed with the same items as in Study 2a. Table 3 provides the means, standard deviations, and Cronbach's alphas for each of these measures.

Table 3. Means, standard deviations, Cronbach's alphas, and correlations (Study 2b).

Measure	*M*	SD	*α*	1.	2.	3.	4.
1. Trust	5.62	1.47	.97	-			
2. Brand perception	5.09	1.49	.94	.88***	-		
3. Customer loyalty	5.43	1.81	.98	.92***	.83***	-	
4. Shopping intentions	5.67	1.80	.98	.89***	.79***	.95***	-
5. General attitudes	5.46	1.53	.99	.98***	.92***	.97***	.94***

Note. *** $p < .001$.

Results

Correlation analysis and factor structure

As in the previous study, the correlations between the four outcome measures were all positive and significant (all *r*s > .79; all *p*s < .001; see Table 3). Again, we extracted a component from the inter-correlations among the items, which had an eigenvalue of 16.60 with an explained variance of 79.0%. We thus again collapsed the items of the four outcome measures into one general measurement that reflects participants' general attitudes towards the store (see Table 3).

General attitudes toward the store

A 2 (product price: \$50 vs. \$500) × 5 (refund depth: 0% vs. 100% vs. 150% vs. 200% vs. 500%) ANOVA on the general attitudes scale showed a significant main effect of refund depth, $F(4, 273) = 131.91$, $p < .001$, $\eta^2_p = .66$. The main effect of product price and the interaction effect between product price and refund depth were both non-significant, $F(1, 273) = 0.13$, $p = .719$, $\eta^2_p = .00$ and $F(4, 273) = 1.94$, $p = .105$, $\eta^2_p = .03$, respectively. A subsequent post-hoc test (LSD; see Table 4) revealed that solely the 0% refund depth condition ($M_{0\%} = 2.92$, $SD = 1.14$) differed significant from all the other refund depth conditions ($M_{100\%} = 5.86$, $SD = 0.94$;

$M_{150\%}$ = 6.11, *SD* = 0.86; $M_{200\%}$ = 6.14, *SD* = 0.78; $M_{500\%}$ = 6.10, *SD* = 0.78). As in the prior study, the price-matching and the three price-beating conditions did thus *not* differ significantly from each other. Here too, ANOVAs and subsequent post-hoc tests for the individual scales revealed similar results as the ones reported for the aggregated scale.

Table 4. Results of post-hoc test (Study 2b).

Contrast	General attitudes		
	Δ*M*	SE	*p*
0% vs. 100%	-2.94***	0.17	<.001
0% vs. 150%	-3.19***	0.17	<.001
0% vs. 200%	-3.22***	0.17	<.001
0% vs. 500%	-3.18***	0.17	<.001
100% vs. 150%	-0.25	0.17	.136
100% vs. 200%	-0.28	0.17	.097
100% vs. 500%	-0.24	0.17	.162
150% vs. 200%	-0.03	0.17	.863
150% vs. 500%	0.02	0.17	.921
200% vs. 500%	0.05	0.17	.785

Note. *** $p < .001$.

Discussion

The present study expands the results of the previous studies by showing that when customers receive an advertised price-beating refund in the aftermath of a price difference, this reimbursement was not more effective to enhance customers' general attitudes towards the store – under the form of improved trust, brand

perception, loyalty, and shopping intentions – compared to when a price-matching refund was provided. Actually, the current study revealed that a price-matching refund already affected customers' responses very positively (i.e., an average score of almost six on a scale that ranges from one to seven). Importantly, these observations applied to both included product prices, thereby increasing the generalizability of the present findings.

The findings of our first study suggest that 60% of the marketers and shop owners believe that a price-beating strategy is particularly effective, but our latter two studies show that this is not the case. However, it is possible that people are more sensitive to differences in refund strategies when they can evaluate them jointly (like in the within-subjects design of Study 1 in which marketers and shop owners evaluated different strategies simultaneously), while this sensitivity might be lower when people are confronted with only one of them (like in the between-subjects designs of Studies 2a and 2b in which participants evaluated these strategies in isolation). This discrepancy between a within and between design can offer an explanation why we find a disconnection between what most marketers and shop owners believe the best strategy would be and how customers actually evaluated these strategies. In order to rule out an explanation in terms of evaluability of information (for more information on the evaluability framework; see Hsee, 1996; Hsee, Loewenstein, White, & Bazerman, 1999; Hsee & Zhang, 2010), in the following studies we aimed to replicate the findings of Studies 2a and 2b by using a within-subjects design. In these subsequent studies we particularly focused on the contrast of matching price differences versus beating price differences in *fivefold*. We did this because from a calculative perspective, it can be predicted that the larger the magnitude of a price-beating refund, the more favorable the outcome should be. In the following studies we also took mediation role of fairness perceptions into account.

Study 3a

Method

Participants, design, and procedure

A sample of 201 US citizens (47.3% men; M_{age} = 38.48, *SD* = 12.79) were recruited through Mturk for the completion of an online scenario study in exchange for payment ($0.50). In this study 20 participants (10%) were excluded from further analyses. Six participants were excluded because they failed to answer our manipulation checks correctly and 14 additional participants because they failed on our attention checks. Of the remaining 181 participants, 32% had a high school degree, 53% a Bachelor's degree, 12.7% a Master's degree, and 2.2% a PhD degree.

In the present study we employed a 2-level (refund depth: 100% vs. 500% of the price difference) within-subjects design. Each participant was thus asked to evaluate both these refund depth conditions. The order of the conditions was randomized. We used the same scenario descriptions as in Study 2a.

Measures

Manipulation and realism check. The same manipulation and realism check were used as in Study 2a. Participants who were unable to identify the correct refund levels were not included in the analyses. A one sample t-test revealed that the mean score on the realism check (*M* = 4.73, *SD* = 1.30) significantly differed from the scale's midpoint ($t(180) = 7.56$, $p < .001$), which indicates that the scenarios were viewed as realistic.

Fairness perceptions and general attitudes towards the store. In our within-subjects design participants had to rate the included measures for each condition. Therefore, in the present study we used a two-item fairness scale and an abridged four-item version of our general attitudes scale. Fairness perceptions were measured using the following two items, "To what extent do you find this low-price guarantee fair / adequate" (1 = *not at all*, 7 = *very much*). These items are based on the fairness

scale of Gelbrich et al. (2015). For the general attitudes scale we selected one item of each of the individual scales (trust, brand perception, loyalty, and shopping intentions). Specifically, the items that displayed the strongest factor loading in the factor analysis of Study 2a were included (these particular items are provided as sample items in our description of Study 2a). Table 5 provides the means, standard deviations, Cronbach's alphas, and correlations for each measure, separately for the 100% and the 500% refund depth condition.

Table 5. Means, standard deviations, Cronbach's alphas, and correlations (Study 3a).

Measure	*M*	SD	*α*	1.	2.	3.
1. Fairness 100%	5.62	1.29	.77	-		
2. Fairness 500%	5.22	1.78	.76	.00	-	
3. General attitudes 100%	5.54	1.16	.94	.61***	-.01	-
4. General attitudes 500%	5.74	1.51	.95	.03	.60***	.25***

Note. *** $p < .001$.

Results

Fairness perceptions and general attitudes towards the store

A paired sample t-test on the fairness scale revealed that the 500% refund depth condition was perceived as significantly *less fair* than the 100% refund depth condition ($t(180) = -2.41$ $p = .017$). However, for the general attitudes scale these two conditions did *not* differ significantly from each other ($t(180) = 1.55$, $p = .124$).

Mediating role of fairness perceptions

To test whether fairness perceptions mediate the null effect of refund depth on general attitudes towards the store, a within-subjects mediation analysis was conducted using the MEMORE macro in SPSS (Montoya & Hayes, 2016; based on 1,000 bootstrap samples). The results of this analysis revealed a negative and

significant *indirect* effect of refund depth (which contrasted the 500% refund depth condition with the 100% refund depth condition) on general attitudes through fairness perceptions (b = -0.20, SE = 0.09, 95% CI [-0.37, -0.04]). The *direct* effect of refund depth on general attitudes was positive and significant (b = 0.39, SE = 0.09, $t(178) = 4.25$, $p < .001$). Note that in the literature this type of mediation, in which the indirect effect and the direct effect have opposite signs (which can cancel out the total effect, as such causing the reported null effect), is often referred to as an inconsistent mediation effect (also called suppression; see Davis, 1985; also see MacKinnon, Fairchild, & Fritz, 2007; McFatter, 1979).

Discussion

In the present study we employed a within-subjects design in order to replicate the results of Study 2a. We again found that customers' general attitudes towards the store were not significantly improved when a store announced to beat price differences in fivefold compared to when a store announced to match price differences. The findings further indicate that a large price-beating guarantee that promises to cover price difference in fivefold is perceived as less fair than a price-matching guarantee. Moreover, our mediation analysis showed that fairness perceptions mediate the null effect of price-matching versus price-beating in fivefold on general attitudes towards the store. The findings of this study as such illustrate that a large price-beating guarantee is not more effective than price-matching because such a guarantee is perceived as less fair. Fairness thus acts as a suppressor variable in the relationship between refund depth and general attitudes.

The aim of the following study was to replicate the findings of Study 2b, in which the effectiveness of the provision of an announced price-beating refund was examined. Hence, in the next study we focused on the effectiveness of price-beating as a compensation policy to retain customers (instead of an advertisement strategy to attract customers). Perceived fairness was again included as the mediator variable.

Study 3b

Method

Participants, design, and procedure

The sample consisted of 200 US citizens (47% men; M_{age} = 37.62, *SD* = 13.05), who were recruited through Mturk. Participants completed an online scenario study in exchange for payment ($0.50). Ten participants (5%) were excluded from further analyses. One participants was excluded because she failed to answer our manipulation checks correctly and nine additional participants because they failed on our attention checks. Of the remaining 190 participants, 0.5% had no degree, 34.7% a high school degree, 53.2% a Bachelor's degree, 9.5% a Master's degree, and 2.1% a PhD degree.

We again employed a 2-level (refund depth: 100% vs. 500% of the price difference) within-subjects design. To administer our refund depth manipulation we used similar scenario descriptions as in Study 2b. However, while in Study 2b we manipulated product price (which did not yield a significant effect), in the present study we only included one intermediate product price level (i.e., a vacuum cleaner with a retail price of $100). After participants were informed about the store's low-price guarantee (see procedure of Study 2b), they were asked to imagine that they bought a new vacuum cleaner for the price of $100, and that they later discovered that another store sells the exact same vacuum cleaner for only $80. As advertised by the store, in the 100% refund depth condition participants were offered a refund that exactly covered the price difference between the two stores, whereas in the 500% refund depth condition participants were offered a refund that covered five times the price difference. All participants were presented with both refund depth conditions. The order of these conditions was randomized.

Measures

Manipulation and realism check. We used the same manipulation and realism check as in Study 2b. Participants who were unable to identify the correct refund levels were not included in the analyses. A one sample t-test revealed that the mean score on the realism check (M = 4.82, SD = 1.54) significantly differed from the scale's midpoint ($t(189) = 7.32$, $p < .001$). This finding again indicates that the scenarios were viewed as realistic.

Fairness perceptions and general attitudes towards the store. Fairness (2 items) and general attitudes (4 items) were probed with the same items as in Study 3a (the fairness items were slightly adapted in order to measure the perceived fairness of the compensation policy). Here too, participants answered these items for both refund depth conditions. Table 6 provides the means, standard deviations, Cronbach's alphas, and correlations for each measure, separately for both refund depth conditions.

Table 6. Means, standard deviations, Cronbach's alphas, and correlations (Study 3b).

Measure	*M*	SD	*α*	1.	2.	3.
1. Fairness 100%	6.34	0.95	.66	-		
2. Fairness 500%	4.85	1.93	.70	.10	-	
3. General attitudes 100%	6.33	0.95	.93	.59***	.01	-
4. General attitudes 500%	6.22	1.27	.94	.13	.46***	.31***

Note. *** $p < .001$.

Results

Fairness perceptions and general attitudes towards the store

A paired sample t-test on the fairness scale revealed that the 500% refund depth condition was perceived as significant *less fair* than the 100% refund depth

condition ($t(189) = -9.92$, $p < .001$). However, for the general attitudes scale these conditions did *not* yield a significant difference ($t(189) = -1.00$, $p = .321$).

Mediating role of fairness perceptions

The MEMORE macro of Montoya and Hayes (2016) revealed a negative and significant *indirect* effect of refund depth (which contrasted the 500% refund depth condition with the 100% refund depth condition) on general attitudes through fairness perceptions ($b = -0.58$, $SE = 0.09$, 95% CI [-0.77, -0.41]) as well as a positive and significant *direct* effect of refund depth on general attitudes ($b = 0.48$, $SE = 0.11$, $t(187) = 4.41$, $p < .001$), again indicating inconsistent mediation.

Discussion

This study replicates Study 2b showing that an advertised price-beating refund is not more effective to enhance customers' general attitudes towards the store than a price-matching refund. This result was obtained by using a within-subjects design in which participants evaluated these two strategies jointly. Moreover, the results indicated that a refund that beats price differences in fivefold is perceived as less fair than a refund that matches price differences, which according to our mediation analysis can explain the lack of additional positive effects of a price-beating refund on our general attitudes measure.

General discussion

Companies can employ a "lowest price or difference back" (i.e., *price-matching*) or a "lowest price or *more* than the difference back" (i.e., *price-beating*) guarantee. Over the last few decades, companies worldwide have used this latter strategy as a tool to signal low product prices to their customers. However, empirical research on this topic is still rather scarce. Because beating a price difference may entail considerable extra costs for companies, it is vital to investigate whether this

strategy results in more positive reactions from customers than matching a price difference. This was the main aim of the present research.

Main conclusions

The results of the first study revealed that nearly 60% of the marketers and shop owners in our sample indicated that beating a price difference would be a more effective approach than matching a price difference to attract new customers as well as to maintain existing customers. This thinking is in line with the standard economic notion that greater compensation should result in more positive behavior towards the company. However, with regard to the different price-beating refund options, the choice ratio decreased when the refund level became larger. So, this latter result does not corroborate the hypothesis that more money is automatically better. Taken together, although most marketers and shop owners in our sample preferred price-beating above price-matching, smaller price-beating refunds were preferred above larger ones. Note that there was also a considerable segment of marketers and shop owners that voiced a preference for price-matching, some of them presumably taking the extra costs of price-beating into account when evaluating the different strategies.

In Studies 2a and 3a we tested whether an advertised price-beating refund was indeed more effective to attract new customers than an advertised price-matching refund, using a between-subjects and a within-subjects design, respectively. In contrast with the beliefs of many marketers and shop owners, the results of these studies revealed that when a company promised to beat a price difference, customers' overall attitude towards the store – which was comprised of trust, brand perception, loyalty, and shopping intentions – was not substantially enhanced beyond the level that was already reached by a price-matching guarantee. This observation held true for the three price-beating refund levels that were included in Study 2a (i.e., 150%, 200%, and 500%). Our results thus corroborate

prior research of Kukar-Kinney (2006) on low-price guarantees, who also found no refund depth effects on store loyalty (although in this study only a 100% refund versus a 110% refund was compared, whereas in real-life situations greater levels of price-beating are prevalent). Additionally, Study 3a revealed that a low-price guarantee that promises to beat price differences in fivefold is perceived as less fair than a low-price guarantee that promises to match price differences. Moreover, our mediation analysis demonstrated that the null effect of price-matching versus price-beating in fivefold is mediated by these fairness perceptions, as such revealing an inconsistent mediation effect (see Davis, 1985; McFatter, 1979). The observation that price-beating in fivefold is not more effective than price-matching can thus be ascribed to its lower perceived fairness.

In Studies 2b and 3b we focused on low-price guarantees as a strategy to retain existing customers after they experienced a price difference, by again using a between-subjects (Study 2b) and a within-subjects design (Study 3b). The results of both studies revealed that when customers received a price-beating refund, their general attitudes in terms of trust, brand perception, loyalty, and shopping intentions were neither significantly improved relative to the price-matching condition. This result also held true for the different price-beating refund levels as well as for the different product prices that were included in Study 2b. Although no prior studies, at least to our knowledge, specifically investigated which effect receiving a price-beating refund has on customers' general attitudes toward this store, the present findings are actually in line with many prior studies on overcompensation which failed to report a surplus value of overcompensation on top of the impact of a compensation that exactly covered the damage (e.g., Estelami & De Maeyer, 2002; Garret, 1999; Noone & Lee, 2002; also see Haesevoets, Reinders Folmer, De Cremer, & Van Hiel, 2013; Haesevoets, Van Hiel, Reinders Folmer, & De Cremer, 2014). Moreover, the results of Study 3b showed that a price-beating refund that

covered the price difference five times was perceived as a less fair compensation policy than a refund that matched the difference. Here too, fairness perceptions mediated the reported null effect of price-matching versus price-beating.

Taken together, the present findings reveal an interesting contradiction: Although most marketers and shop owners thought that the employment of a price-beating guarantee is especially effective, this assessment is not reflected in our subsequent findings that the advertisement as well of the provision of a price-matching refund is equally effective as a price-beating refund. In sum, the present findings thus seem to suggest that, although low-price guarantees can certainly be a useful tool for companies, simply matching a price difference is just as effective as beating it to enhance positive customer responses.

Theoretical implications

With regard to the advertisement effectiveness of price-beating refunds, the results presented here sharply contrast with the popular notion that "more is better." First, price-matching and price-beating guarantees were just as effective to attract and maintain customers. Secondly, larger price-beating refunds were not more effective than smaller ones. Interesting in the present context is the observation that psychological models have proposed that the outcomes of a transaction are not solely valued in terms of their tangible consequences, but also to the extent that they are perceived as fair. In this regard, the literature on advantageous inequality (see Loewenstein, Thompson, & Bazerman, 1989) provides a theoretical framework that can help to explain the present findings.

This literature has shown that people are strongly influenced by the principle of equality. Importantly, this increased preference for equality is not only noted for disadvantageous inequality, but also for advantageous inequality (which is an inherent aspect of price-beating refunds). Thus, people value equality higher than other outcome distributions, even if those other outcomes might objectively have a

greater economic value, like when a refund beats the mere price difference. Moreover, in this literature it has been argued that in cases of advantageous inequality individuals may experience feelings of guilt and distress as they consider the refund to be exaggerated (see Garrett, 1999; McCollough, Berry, & Yadav, 2000). In line with this perceptive the present research revealed that price-beating in fivefold is actually perceived as a less fair advertisement strategy and compensation policy than matching price differences. As a result of this, the effectiveness of large price-beating refunds to enhance positive customer reactions was hampered. Prior overcompensation studies have found that the relationship between the level of overcompensation and degree of recovery is also mediated by the perceived fairness of the provided reimbursement (Gelbrich et al., 2015). Our studies complement this prior research by showing that the importance that people attach to fairness can also explain the null effects of price-matching versus price-beating that we observed in our research (also see Kukar-Kinney, Xia, & Monroe, 2007).

In this light, it should be noted that in the present study we only tested and found the mediating role of fairness perceptions for the largest price-beating condition that covered price differences five times. We did this because prior research on overcompensation has revealed that people can handle unfairness, at least when it is not too large and in their advantage (e.g., see Boshoff, 1997; Gilly & Hansen, 1985; Hocutt et al., 2006). Based on these findings, it can thus reasonably be expected that a price-beating refund (and thus the degree of advantageous inequality) has to be rather large in order to be perceived as less fair than price-matching (which restores the state of equality). Therefore, our largest price-beating condition was most suitable to test for mediation of fairness.

Practical implications

Our findings underscore the importance of low-price guarantees for companies as the results of our studies clearly indicate that customers' general

attitudes towards a company were more positive in the presence of a low-price guarantee than in the absence of such a guarantee. However, a basic question that companies face when developing low-price guarantees is: What size of refund should best be offered? Price-beating refunds can be costly for companies. From a managerial perspective, the lack of additional positive effects of price-beating beyond price-matching should thus warn companies that the refund depth should best be restricted to matching the lower competitive price (cf. Kukar-Kinney, 2006).

The high costs of price-beating guarantees can best be illustrated by an example of the British supermarket Tesco. As mentioned in the introduction, in 2011 Tesco advertised to double the difference if customers found products cheaper at an Asda store. According to a report in the Daily Mail ("Customers make a killing after Tesco is forced to pay out refunds as price pledge backfires," 2011), one shopper bought two bottles of Chardonnay, two bottles of Magners pear cider, two Nivea rich body moisturizers, and a pack of mature cheddar. The basket of items came to £17.48 at Asda and £38.46 at Tesco – a difference of £20.98. Tesco was forced to give this customer a voucher equivalent to £41.96. Hence, this customer ended up with free products and some extra money. On a Manchester United web forum one customer even claimed to have made £600 from Tesco. Later that year, Tesco blamed consumers for over-exploiting the deal and had withdrawn its pledge to pay customers double the difference. In sum, these examples highlight that the announcement of price-beating refunds can imply serious cost for companies. Because customers seem to benefit little from refunds beyond price-matching, price-beating can be considered to be a cost-*in*effective strategy for companies.

Strengths, limitations, and recommendations for future research

The price-beating continuum can be seen as an open-ended interval with no natural upper boundary. In this light, an important strength of the present research is that we included multiple price-beating refund sizes that broadly covered the price-

beating range. A vital strength of our research, therefore, is that we were able to replicate the neutral effect of price-beating (versus price-matching) using moderate and strong forms of price-beating, thereby increasing the ecological validity of our research. In a related vein, the inclusion of two different product prices in Study 2b also increases the generalizability of our findings over different product prices.

Another important strength of our contribution is that we obtained similar findings for price-matching versus price-beating across studies using both between-subjects and within-subjects designs. The fact that we could replicate these effects with both designs further enlarges our confidence in the robustness of our findings. Moreover, the use of these different designs also clarifies that a difference in terms of evaluability of information (see Hsee, 1996; Hsee & Zhang, 2010) cannot explain the reported contradiction between what most marketers and shop owners believed the best strategy was in our first study, and how customers actually evaluated the different strategies in our subsequent studies.

A limitation of our research, however, is that we relied on scenario-based experiments in which participants had to imagine how they would react to an advertised price-matching or price-beating refund. An important advantage of using scenarios is that it enhances internal and statistical conclusion validity by controlling manipulated variables and by reducing random noise in the outcome measures (see Cook & Campbell, 1979; Churchill, 1995; also see Havlena & Holbrook, 1986; Wirtz & Bateson, 1999). Although by the use of consumer samples and realistic scenarios our studies showed a reasonable degree of mundane realism, an important disadvantage is that reading a hypothetical scenario is still different from actually experiencing a specific event. In this vein, Garret's (1999) field experiment on overcompensations revealed that when companies actually provided dissatisfied customers a cash-based overcompensation, customers' satisfaction and repurchase intentions were not enhanced relative to an exact compensation. A similar result was

more recently obtained in a laboratory experiment by Haesevoets and colleagues (2014). Future research should investigate whether our findings also hold true when participants actually expect or benefit form a price-beating refund in a field setting.

Another limitation of the present study is that other factors (besides fairness) that could influence the effectiveness of different low-price guarantees might have been overlooked. Prior research of Kukar-Kinney and Walters (2003) found that the competitive scope (i.e., the number of competitors eligible for the low-price guarantee) also affected patronage intentions. Moreover, Kukar-Kinney, Walters, and MacKenzie (2007) reported that the effects of refund depth on purchase behavior varied across more and less price conscious consumer segments. Future research should also take these and other situational and personality variables into account when investigating the effectiveness of price-matching versus price-beating.

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Chapter 7

Money isn't all that Matters: The use of Financial Compensation and Apologies to Preserve Relationships in the Aftermath of Distributive Harm

Abstract

When a recipient suffers from financial harm, allocators can use repair strategies that address financial or relational interests to promote relationship repair. Research to date, however, has neglected to study the effects of financial *and* relational strategies on relationship preservation simultaneously. In the present contribution, we examine this question. Based on the equality norm, we hypothesized that a financial compensation that fails to redress the harm suffered by the recipient (i.e., undercompensation) will be less effective in preserving a relationship than a financial compensation that do redress it (i.e., equal compensation and overcompensation). Moreover, we expected that relational strategies (i.e., apologies) would promote relationship preservation in contexts where the financial compensation alone is insufficient to redress the harm to the recipient, thus in cases of undercompensation. The results of a scenario study and a lab experiment using the dictator game confirmed our hypotheses. Consequently, our studies demonstrate that even in purely economic settings, relational strategies can facilitate relationship preservation over and above financial strategies.

This chapter is based on Haesevoets, T., Reinders Folmer, C., De Cremer, D., & Van Hiel, A. (2013). Money isn't all that matters: The use of financial compensation and apologies to preserve relationships in the aftermath of distributive harm. *Journal of Economic Psychology, 35,* 95-107.

Introduction

In economic situations in which monetary resources have to be allocated between two or more parties, most people prefer allocations to be divided fairly (Camerer & Thaler, 1995; Handgraaf, Van Dijk, & De Cremer, 2003; Pillutla & Murnighan, 1996). One allocation norm that is particularly favored in this context is the equality norm (Handgraaf et al., 2003; Messick, 1993; Samuelson & Allison, 1994). The equality norm is a social standard that dictates an equal allocation of the resources between all the members of some specified group (Deutsch, 1975; Kahn, 1972; Lerner, 1975; Leventhal, 1976; Sampson, 1969, 1975). According to Straub and Murnighan (1995), these 50-50 offers are regarded as "perfectly fair", because they satisfy most, if not all, criteria for fairness (see Allison & Messick, 1990; also see Pillutla & Murnighan, 1996). Consequently, allocations that meet the equality norm are associated with a range of positive consequences, such as trust (e.g., De Cremer, 2010; Desmet, De Cremer, & Van Dijk, 2011) and cooperation (e.g., Bottom, Daniels, Gibson, & Murnighan, 2002). Offers that violate the equality norm, however, are often perceived as unfair, and consequently may evoke a host of negative reactions, like negative emotions (e.g., anger, disappointment, sadness, and wounded pride; see Fehr & Baldwin, 1996; Jones & Burdette, 1994; Joskowicz-Jabloner & Leiser, 2011; Pillutla & Murnighan, 1996) and behaviors (e.g., verbal aggression; see Haden & Hojjat, 2006; Ochs & Roth, 1989). One of the most important consequences of such violations is that trust in the allocating party decreases (Bottom et al., 2002; Bottom, Eavey, & Miller, 1996; De Cremer, 2010; Kim, Ferrin, Cooper, & Dirks, 2004; Schweitzer, Hershey, & Bradlow, 2006). Moreover, following interpersonal transgressions, victims often experience some motivation to seek revenge or to avoid the transgressor (i.e., transgression-related interpersonal motivations or TRIMs, see McCullough, Bellah, Kilpatrick, & Johnson, 2001; McCullough, Fincham, & Tsang, 2003; McCullough & Hoyt, 2002;

McCullough, Root, & Cohen, 2006). Hence, violations of the equality norm may threaten the continuation of the relationship between the allocator and the recipient, thus potentially denying them the economic benefits of future cooperation.

For this reason, it is important that the allocator reduces negative reactions and promotes the continuation of the relationship after unfair resource allocations. In this respect, it is important that people also possess cognitive forgiveness mechanisms designed to change vengeful motivations and promote the restoration of relationships (Burnette, McCullough, Van Tongeren, & Davis, 2012). When victims forgive, they become less avoidant, less vengeful, and more benevolent towards the transgressor (McCullough et al., 2006). Previous studies have identified several factors that may promote forgiveness (e.g., high relationship value and low exploitation risk; see Burnette et al., 2012). Particularly interesting, however, are positive actions that transgressors can employ to promote forgiveness (see Jones & Davis, 1965; McCullough, 2000; McCullough, Rachal, Sandage, Worthington, Brown, & Hight, 1998; Ristovski & Wertheim, 2005; Tabak, McCullough, Luna, Bono, & Berry, 2012). In the context of financial exchanges, one prominent response is to offer a financial compensation (e.g., Desmet et al., 2011). By providing financial compensation, the transgressor addresses his or her misbehavior by returning a portion of the resources to the recipient, thereby reducing or undoing the financial damage that was sustained through the transgression. Because concerns about the outcome dominate decisions in economic decision making situations (Camerer, 1995), compensating the recipient may promote the continuation of the relationship (De Cremer, 2010; Desmet et al., 2011). Nevertheless, some scholars have argued that financial compensation alone may not be sufficient to restore the relationship (e.g., see Okimoto & Tyler, 2007). Specifically, as unfair allocations constitute a violation of the norms of interpersonal trust and fairness, responses that address these relational aspects of the transgression may also be required (Tyler,

Boeckmann, Smith, & Huo, 1997). One such response is to apologize for the harm. Apologies communicate that the transgressor feels remorse and is willing to take responsibility for maintaining the relationship (Scher & Darley, 1997). In this way, apologies constitute a non-financial means of addressing transgressions (e.g., Kim, Dirks, & Cooper, 2009; Lazare, 2004) that satisfies relational concerns by affirming the victim's social standing and respect for the victim (Barclay & Skarlicki, 2008).

So far, little research has investigated the impact of financial compensation on the restoration of relationships (Desmet et al., 2011; De Cremer, 2010). Moreover, hardly any research has addressed the relationship between financial and relational responses to fairness violations. In the current studies, we focus on financial compensation and apologies, and compare their effectiveness as a means to facilitate relationship preservation in the aftermath of distributive harm. When a transgression has been made and a compensation or an apology is offered, victims may choose to continue or discontinue their relationship with the transgressor; therefore, we will focus on relationship preservation as the dependent variable.

Research aims

In the present contribution, we aim to address two major questions. First, we aim to investigate the effectiveness of financial compensation as a means to preserve a relationship after an unfair allocation of resources. Previous research has provided some indication that financial compensation may be a useful way to repair relationships (Desmet et al., 2011); however, it is unclear how the amount of compensation may affect its effectiveness. To determine the conditions that are necessary for compensation to be effective, we directly compare the effectiveness of three levels of compensation: undercompensation (i.e., compensation that reduces the inequality of the allocation but fails to restore equality), equal compensation (i.e., compensation that returns sufficient resources to restore equality), and overcompensation (i.e., compensation that not only restores equality but exceeds it,

resulting in an outcome that is more favorable to the victim than to the offender). Secondly, we examine when relational responses may be more effective than responses that directly address the financial aspects of transgressions in promoting willingness to continue the relationship with the transgressor. More specifically, we suggest that relational restoration responses, such as apologies, may be particularly helpful in preserving relationships in situations where the transgressors are unable or unwilling to fully compensate victims for the financial harm inflicted by their transgressions (i.e., in cases of undercompensation).

Financial compensation: An economic perspective

Financial interests dominate in decision-making situations (Camerer, 1995). Moreover, some scholars have argued that in economic exchanges, the continuation of a relationship between the parties involved is driven primarily by a concern for tangible outcomes (e.g., see Lewicki, Wiethoff, & Tomlinson, 2005). Consequently, financial compensation should facilitate the preservation of a relationship because it directly addresses these financial interests.

Financial compensation and the equality norm

How might the amount of compensation affect its effectiveness as a means to facilitate relationship preservation? To answer this question, it is important to understand that undercompensation, equal compensation, and overcompensation differ in two distinct dimensions, i.e., the outcomes that compensation provides for the victim and the extent to which the compensation redresses inequality.

First, in terms of economic outcomes, greater compensation yields better outcomes for the victim. This suggests that to the extent that victims' decisions in economic decision making situations depend on financial interests, greater compensation will result in greater willingness to preserve a relationship. Indeed, in line with this argument, previous research has indicated that under certain

circumstances overcompensation yields better results than equal compensation and undercompensation (Desmet et al., 2011).

Secondly, undercompensation, equal compensation, and overcompensation also differ in the extent to which they redress inequality. Undercompensation may reduce the inequality that results from an unfair allocation, but it fails to restore equality, and the parties' final outcomes remain unequal. In addition, while overcompensation may result in favorable outcomes for the recipient, it also results in inequality, as the recipient's final outcome exceeds the allocator's final outcome. If compensation is appreciated for the extent to which it redresses inequality, then the effectiveness of undercompensation and overcompensation may not be proportional to their economic consequences. In line with this idea, research on fairness has revealed that people's appreciation of equal and unequal outcomes may not match their objective monetary value (see Adams & Freedman, 1976; Berkowitz & Walster, 1976; De Cremer & Van Kleef, 2009; Van den Bos, Lind, Vermunt, & Wilke, 1997). Rather, the utility that people derive from advantageous inequality is by far exceeded by the disutility they derive from disadvantageous inequality (Loewenstein, Thompson, & Bazerman, 1989). These findings suggest that the relationship between the compensation amount and its effectiveness in preserving the relationship may not be linear (i.e., directly proportional to the recipient's economic outcome); rather, it may be curved so that greater compensation may produce less of a benefit for the relationship after the amount exceeds the equality norm.

While predictions based on these two dimensions may differ regarding the effectiveness of overcompensation, both perspectives suggest that compensation that falls short of equality may be relatively less effective than compensation that restores equality or exceeds it. Nevertheless, undercompensation is attractive for transgressors, who may not be able or willing to sustain the considerable financial

costs associated with equal compensation and overcompensation. A real-life example of this is the case of a major Belgian bank that compensated customers who had purchased bonds in southern European countries (an investment that the bank had presented as "safe"). Rather than offering a full compensation, the bank compensated its customers for the nominal amount (i.e., after deduction of costs and with no interests), causing them to suffer losses of at least 15% of their original investment. In response, many of these investors planned to sue the bank in order to obtain at least an equal compensation. Moreover, transgressions for which transgressors are unwilling to fully compensate are common in the context of customer service complaints, where customers and companies disagree about the level of service that is acceptable, and the level of compensation that is appropriate in this situation. For example, manufactures and customers may often have different perceptions of the length of the service life that is appropriate for appliances, with customers often expecting a longer service life than manufacturers. This discrepancy is particularly poignant in situations where breakages occur when the warranty has just expired. In this case, customers are likely to receive no or only a small compensation (e.g., a small discount on the purchase of a new appliance), while feeling entitled to a higher compensation (e.g., a free new appliance). Thus, in situations like these, customers are likely to feel undercompensated. As both examples illustrate, transgressors often may offer an undercompensation, even though by doing so it is less likely that the relationship will be preserved. A critical question that arises here is whether the effectiveness of undercompensation can be bolstered through other means. This raises the issue of non-financial strategies. Specifically, we suggest that in situations where transgressors are unwilling or unable to fully compensate the financial harm inflicted by their transgressions, relational restoration responses, such as apologies, may help to preserve the relationship.

Apologies: A relational perspective

It is increasingly acknowledged that non-financial motives are important, even in economic situations (Lax & Sebenius, 1986) in which people also experience relational concerns (Curhan, Elfenbein, & Xu, 2006; De Cremer, 2002). In this respect, unfair allocations do not only violate distributive fairness concerns, but also constitute a violation of relational fairness concerns; which reflect the degree to which people are treated with politeness, dignity, and respect (Bies & Moag, 1986). This notion suggests that relationship repair may also be facilitated by strategies that address relational harm. One prominent way in which transgressors can appeal to these relational concerns is by offering an apology (Lazare, 2004; Kim et al., 2009). Darby and Schlenker (1982, p. 742) define an apology as "an admission of blameworthiness and regret for an undesirable event".

Apologies address these relational fairness concerns because they convey the message that the transgressor admits the wrongdoing, feels remorse for it, and is willing to take responsibility for repairing the broken relationship (Barclay & Skarlicki, 2008; Scher & Darley, 1997). By doing so, apologies restore the victim's dignity and affirm respect for the victim (Barclay & Skarlicki, 2008), thereby restoring the relational aspects of fairness that were harmed by the transgression. A second reason why apologies address these relational fairness concerns is because they reduce uncertainty, which may be evoked by the transgression (e.g., see the uncertainty management model; Van den Bos & Lind, 2002). An apology signals that the transgressor will be trustworthy in the future, which leads to less fear and uncertainty about the transgressor's intentions. In the current context, this would imply that an apology operates as a reassurance that signals that "everything is OK".

Apologies and the equality norm

In the context of compensation, when might apologies particularly facilitate relationship preservation? We suggest that relational means of addressing

transgressions may be particularly useful when compensation alone is insufficient to effectively restore the relationship. More specifically, we expect an interaction effect between financial compensation and apologies. When a financial compensation meets (i.e., in case of an equal compensation) or exceeds (i.e., in case of an overcompensation) the equality norm, the recipient's distributive fairness concerns are satisfied, as the initial state of disadvantageous inequality has been redressed. Due to the importance people adhere to fair distributions, we predict that a ceiling effect will occur, whereby that once unfairness has been resolved, people may benefit little from additional – tangible or intangible – restitutions (i.e., further financial compensation, such as overcompensation, or relational actions, like apologies). This implies that, starting from the level of equal compensation, an apology no longer has an additional effect on the level of relationship preservation. In case of an undercompensation, however, the state of disadvantageous inequality has not been redressed. Thus, as undercompensation fails to undo the recipient's unfairness, additional relational actions of the transgressor may be expected in order to preserve the relationship. The idea that relational strategies, such as apologies, may compensate for the unequal distribution of tangible outcomes received some initial support from the work by Brockner and Wiesenfeld (1996, see also Tata, 1999), who showed that relational fairness concerns (e.g., being treated fairly and with respect) are especially important in the context of low levels of distributive fairness. Taken together, we suggest that apologies may be particularly effective when fairness concerns are not met, like in case of an undercompensation. In this domain, we expect that receiving an apology in addition to a financial compensation will have a more positive effect on relationship preservation compared to when only a financial compensation is provided.

The present studies

In the present studies, we focus on the combined effects of financial compensation and apologies in an economic situation. To create a fairness transgression in an economic context, we will use a dictator game (Kahneman, Knetsch, & Thaler, 1986), which implies that we focus on economic situations, in which outcome-related concerns are particularly salient (Desmet et al., 2011). Based on the theoretical framework that we have outlined above, we developed the following hypotheses:

Hypothesis 1: (1a) Undercompensation is less effective in preserving relationships than equal compensation and overcompensation [under < equal + over], but (1b) overcompensation is not more effective in preserving relationships than equal compensation [equal = over].

Hypothesis 2: Undercompensation with an apology is more effective in preserving relationships than undercompensation without an apology [under with apology > under without apology].

Hypothesis 3: (3a) Equal compensation with an apology is not more effective in preserving relationships than equal compensation without an apology [equal with apology = equal without apology], and (3b) overcompensation with an apology is not more effective in preserving relationships than overcompensation without an apology [over with apology = over without apology].

We present two studies to test these hypotheses. Study 1 was designed to test the first two hypotheses, while Study 2 was designed to test all three hypotheses.

Study 1

Method

Participants and design

The participants were 22 postgraduate students (5 men, 16 women, and one person who did not specify a gender; M_{age} = 29.81, *SD* = 6.53). In this study, we opted for a scenario study (see De Cremer, Pillutla, & Reinders Folmer, 2011, Study 1). We employed a four-level (undercompensation vs. undercompensation with apology vs. equal compensation vs. overcompensation) within-subjects design.

Procedure

Participants were asked to take part in a game. It was explained that they would play a dictator game with another student who was supposedly present in another room. First, the participants read a paper with instructions. They learned that in the game, two players would decide over the division of ten lottery tickets, with which a 10 euro gift voucher could be earned. One player (the allocator) would unilaterally divide the tickets; the other player (the recipient) could not influence this division. All participants played the role of the recipient; the allocator was simulated. After a pause, the experimenter brought a form on which the allocator supposedly had written his or her decision to allocate two of the ten tickets to the recipient.

Before continuing the game, the participants were asked to evaluate four possible responses by which the allocator could react to the unequal allocation: 1) by giving fewer extra tickets than the number needed to reach an equal distribution (i.e., one ticket in the *undercompensation* condition), 2) by giving fewer extra tickets than the number needed to reach an equal distribution and an additional apology (i.e., one ticket and an apology in the *undercompensation with apology* condition), 3) by giving the exact number of extra tickets needed to reach an equal distribution (i.e., three tickets in the *equal compensation* condition), and 4) by giving more extra

tickets than needed to reach an equal distribution (i.e., five tickets in the *overcompensation* condition). After each response, we measured participants' intentions to replace the allocator ("To what extent would you wish to replace the allocator?"; 1 = *not at all*, 7 = *very much*), and their behavioral intentions to give the allocator a second chance ("Would you be willing to give the allocator a second chance in the next round?"; 0 = *no,* 1 = *yes*). The four responses were presented in a fixed order. One participant did not answer these questions and therefore was excluded from further analyses.

The study was then stopped, and the participants were thanked and debriefed.

Results

Intentions to replace the allocator

A repeated measures analysis of variance (ANOVA), using the continuous measure of relationship preservation for the four responses as within-subject variables, revealed that the intention to replace the allocator was significantly affected by the allocator's response, $F(3, 18) = 16.16$, $p < .001$, $\eta^2_p = .73$. The contrasts were planned in accordance with our hypotheses. Supporting *Hypothesis 1a,* participants indicated significantly stronger intentions, $F(1, 20) = 28.60$, $p < .001$, $\eta^2_p = .59$, to replace the allocator after receiving undercompensation with or without an apology ($M = 4.69$, $SD = 1.50$) than after receiving equal and overcompensation ($M = 2.57$, $SD = 1.48$). Furthermore, in support of *Hypothesis 1b*, participants did not indicate stronger intentions, $F(1, 20) = 0.25$, *n.s.*, $\eta^2_p = .01$, to replace the allocator after receiving equal compensation ($M = 2.48$, $SD = 1.78$) compared to overcompensation ($M = 2.67$, $SD = 1.65$). Finally, in support of *Hypothesis 2*, participants had significantly stronger intentions, $F(1, 20) = 5.99$, $p < .05$, $\eta^2_p = .23$, to replace the allocator after receiving undercompensation without an

apology (M = 4.95, SD = 1.43) than after receiving undercompensation with an apology (M = 4.43, SD = 1.72).

Behavioral intentions to give the allocator a second chance

A repeated measures ANOVA, using the dichotomous measure of relationship preservation for the four responses as within-subject variables, revealed that the behavioral intention to give the allocator a second chance was significantly affected by the allocator's response, $F(3, 18) = 12.00$, $p < .001$, $\eta^2_p = .67$. Again, the contrasts were planned in accordance with our hypotheses. It was revealed that, in agreement with *Hypothesis 1a*, participants were significantly less likely, $F(1, 20) = 29.41$, $p < .001$, $\eta^2_p = .60$, to give the allocator a second chance after receiving undercompensation with or without an apology (M = 0.38, SD = 0.44) than after receiving equal and overcompensation (M = 0.86, SD = 0.28). Further, as predicted by *Hypothesis 1b*, overcompensation did not increase intentions to preserve the relationship. Indeed, participants were even significantly less likely, $F(1, 20) = 4.71$, $p < .05$, $\eta^2_p = .19$, to give the allocator a second chance after receiving overcompensation (M = 0.76, SD = 0.44) than after receiving equal compensation (M = 0.95, SD = 0.22). Finally, in support of *Hypothesis 2*, participants were significantly less likely, $F(1, 20) = 4.71$, $p < .05$, $\eta^2_p = .19$, to give the allocator a second chance after receiving undercompensation without an apology (M = 0.29, SD = 0.46) than after receiving undercompensation with an apology (M = 0.48, SD = 0.51). Table 1 reports, for each of the four responses, the number and the percentage of participants who would (or would not) give the allocator a second chance.

Table 1. The number and percentage of participants that would (or would not) give the allocator a second chance in the next round in Study 1 (N = 21)

Allocator's response	Give the allocator a second chance?			
	Yes		No	
	n	%	*n*	%
Undercompensation	6	28.6	15	71.4
Undercompensation with an apology	10	47.6	11	52.4
Equal compensation	20	95.2	1	4.8
Overcompensation	16	76.2	5	23.8

Discussion

The present study provides some initial evidence that in a financial exchange, apologies might encourage relationship preservation when the recipients receive a compensation that is too low to achieve equality. Furthermore, the results showed that overcompensation is not more effective than equal compensation in achieving this positive reaction. Both of these results thus indicate that in financial situations, it is not only monetary concerns that play a role.

Study 2

Method

Participants and design

A total of 302 undergraduate students at Erasmus University Rotterdam in the Netherlands (175 men, 127 women; M_{age} = 20.56, SD = 1.69) participated in the study in exchange for course credits. Unlike Study 1, Study 2 was a lab experiment. Moreover, compensation and apologies were now manipulated orthogonally, and we included a *no compensation* condition as a control group. Therefore, the study employed a full factorial 4 (compensation: no compensation vs. undercompensation

vs. equal compensation vs. overcompensation) × 2 (apology: no apology vs. apology) between-subjects design.

Procedure

Upon arrival in the laboratory, each participant was placed in a separate experimental cubicle in front of a computer. First, the dictator game was explained. As in Study 1, all participants played the role of the recipient and received two of the ten lottery tickets from the simulated allocator. To assess their comprehension of the task, the participants completed three comprehension checks: (1) who would divide the ten lottery tickets, (2) to what extent the recipient would be able to influence the allocator's decision, and (3) what the lottery tickets were worth. The participants who failed to answer at least two of the three checks correctly were excluded from the analyses (1 participant, 0.3%). In addition, 12 participants (4.0%) were excluded because they voiced suspicion about the task.

To be able to examine actual relationship repair, it is necessary that participants experience the allocator's initial division of the lottery tickets as a transgression. Therefore, we assessed participants' satisfaction with the division by asking them to select one of two messages to send to the allocator (i.e., "I am satisfied with how you divided the lottery tickets" or "I am NOT satisfied with how you divided the lottery tickets"). For participants who indicated that they were satisfied with the division (42 participants, 14.5%), and consequently did not experience it as a transgression, the experiment ended at this point. Participants who indicated that they were not satisfied with the division (247 participants, 85.5%), and consequently experienced it as a transgression, proceeded to the manipulations.

In response to their message to the allocator, participants in the *apology* condition received an apology ("I want to apologize for the division"), while the participants in the *no apology* condition received no apology. The participants in the *no compensation* condition received no compensation, while the participants in the

under-, *equal,* and *overcompensation* conditions received a compensation of additional tickets ("I give you – 1, 3, or 5 – extra ticket(s)," respectively).

To measure participants' intentions to preserve the relationship with the allocator, we used six items based on the Transgression-Related Interpersonal Motivations (TRIM) Inventory—18 (McCullough et al., 1998). The TRIM—18 measures three dimensions of forgiveness motivation: avoidance, revenge, and benevolence (see McCullough et al., 2006). As our focus is on relationship preservation, we selected items from the benevolence subscale – which measures benevolence motivation towards a transgressor – and the avoidance subscale – which measures motivation to avoid a transgressor – that were applicable to our experimental situation. Four items based on the benevolence subscale were used to measure participants' intentions to continue the relationship with the transgressor: "To what extent would you be likely to give the allocator a second chance?", "To what extent would you be likely to give the allocator the benefit of the doubt?", "To what extent would you be inclined to work with the allocator again?", and "To what extent would you not mind working with the allocator again?" Two items based on the avoidance subscale were used to measure participants' intentions to discontinue the relationship with the transgressor: "To what extent would you be inclined to quit working with the allocator?" and "To what extent would you prefer to work with someone else in the future?" All six items were measured using seven-point scales (1 = *not at all*, 7 = *very much*); the two avoidance items were reverse-coded. Mirroring the results of McCullough et al. (2006), a factor analysis with oblique rotation indicated the avoidance and benevolence items to load on a single factor (eigenvalue = 3.14, explained variance = 52.37%); therefore, all items were combined into a single scale (alpha = 0.79, M = 3.61, SD = 1.78) measuring relationship preservation.

To examine whether the apology and the compensation manipulations were successful, we used three manipulation checks: "To what extent did the allocator apologize for his or her actions?", "To what extent did the allocator say sorry about his or her actions?", and "To what extent would you say the allocator gave you many tickets back?" (1 = *not at all*, 7 = *very much*). Because scholars have argued that the use of manipulation checks may influence participants' responses on the dependent variable (Goodwin, 2009; Stangor, 2010), the manipulation checks were solicited at the end of the experiment, after the relationship preservation questionnaire.

Finally, the experiment was stopped, and the participants were debriefed, thanked, and dismissed.

Results

Manipulation checks

Two ANOVAs revealed, for both apology manipulation checks, a significant main effect of apology, $F(1, 239) = 24.99$, $p < .001$, $\eta^2_p = .10$ and $F(1, 239) = 52.88$, $p < .001$, $\eta^2_p = .18$, respectively. Participants interpreted the behavior of the allocator on both items as more apologetic in the apology condition ($M = 4.03$, $SD = 1.87$ and $M = 4.24$, $SD = 1.75$, respectively) than in the no apology condition ($M = 3.00$, $SD = 1.88$ and $M = 2.77$, $SD = 1.81$, respectively). Further, these two ANOVAs also revealed, for both apology manipulation checks, a significant main effect of compensation, $F(3, 239) = 37.40$, $p < .001$, $\eta^2_p = .32$ and $F(3, 239) = 24.62$, $p < .001$, $\eta^2_p = .24$, respectively. A post hoc test (LSD) showed that participants interpreted the behavior of the allocator on both items as not more apologetic (*n.s.*) in the overcompensation condition ($M = 4.72$, $SD = 1.40$ and $M = 4.51$, $SD = 1.51$, respectively) than in the equal compensation condition ($M = 4.46$, $SD = 1.66$ and $M = 4.22$, $SD = 1.74$, respectively). Further, participants interpreted the behavior of the allocator on both items as more apologetic (ps $< .001$) in the equal compensation condition than in the undercompensation condition ($M = 2.85$, $SD = 1.63$ and $M =$

2.90, *SD* = 1.67, respectively). Finally, the participants interpreted the behavior of the allocator on the first item as more apologetic ($p < .05$) and on the second item as not more apologetic (*n.s.*) in the undercompensation condition than in the no compensation condition (*M* = 2.25, *SD* = 1.78 and *M* = 2.50, *SD* = 1.91, respectively). The fact that there is a significant main effect of the compensation condition on the apology manipulation checks, seems to imply that equal compensation and overcompensation implicitly convey the message that a transgressor feels sorry, and that a compensation is an expression of this regret. Consequently, in an economic situation, these monetary resources seem to "make-up for" unfair decision-making (see Okimoto, 2008).

Finally, an ANOVA for the financial compensation manipulation check revealed only a significant main effect of compensation, $F(3, 239) = 132.21$, $p < .001$, $\eta^2_p = .62$. Participants indicated receiving more tickets back from the allocator in the overcompensation condition (*M* = 5.58, *SD* = 1.15) than in the equal compensation condition (*M* = 4.58, *SD* = 1.61), in the equal compensation condition than in the undercompensation condition (*M* = 2.17, *SD* = 1.38), and in the undercompensation condition than in the no compensation condition (*M* = 1.61, *SD* = 1.00). A post hoc test (LSD) showed that the contrasts between all these conditions were significant ($p < .001$, $p < .001$, and $p < .05$, respectively).

Relationship preservation

A 4 (compensation) × 2 (apology) ANOVA on the relationship preservation scale showed a significant main effect of compensation, $F(3, 239) = 40.20$, $p < .001$, $\eta^2_p = .34$, no main effect of apology, $F(1, 239) = .05$, *n.s.*, $\eta^2_p = .00$, and a significant interaction effect of compensation and apology, $F(3, 239) = 2.58$, $p = .05$, $\eta^2_p = .03$. Table 2 reports the means and standard deviations for each condition.

The main effect of compensation was further explored using Helmert contrasts. In support of *Hypothesis 1a*, significantly lower intentions to preserve the

relationship (contrast estimate = -0.78, *SE* = 0.15, $p < .001$) were revealed in the undercompensation condition compared to the equal and overcompensation conditions (*M* = 4.27, *SD* = 0.93). In addition, in support of *Hypothesis 1b*, the intentions to preserve the relationship did not differ significantly (contrast estimate = 0.09, *SE* = 0.18, *n.s.*) between the equal compensation condition and the overcompensation condition.

Next, we examined the significant interaction effect between compensation and apologies by using planned contrasts (Field, 2005). We computed four contrasts regarding the impact of the apology conditions within the compensation conditions. In agreement with *Hypothesis 2*, in the undercompensation condition, an apology significantly increased intentions to preserve the relationship, $F(1, 239) = 4.06$, $p < .05$, $\eta^2_p = .02$. In agreement with *Hypotheses 3a* and *3b*, an apology did not increase intentions to preserve the relationship in the equal compensation condition, $F(1, 239) = 0.65$, *n.s.*, $\eta^2_p = .00$, or the overcompensation condition, $F(1, 239) = 3.03$, *n.s.*, $\eta^2_p = .01$. Finally, an apology did not increase intentions to preserve the relationship in the no compensation condition, $F(1, 239) = 0.03$, *n.s.*, $\eta^2_p = .00$.

Based on our theoretical framework, we computed two contrasts regarding the impact of the compensation conditions within the apology conditions (i.e., a first contrast to compare undercompensation with equal and overcompensation, and a second contrast to compare equal compensation with overcompensation). The first contrast revealed that in the no apology condition, undercompensation significantly decreased intentions to preserve the relationship compared to equal and overcompensation (*M* = 4.42, *SD* = 0.82), $F(1, 239) = 30.27$, $p < .001$, $\eta^2_p = .11$. However, in the apology condition, there was no difference in intentions to preserve the relationship between, on the one hand, undercompensation, and on the other hand, equal and overcompensation (*M* = 4.10, *SD* = 1.02), $F(1, 239) = 2.92$, *n.s.*, $\eta^2_p = .01$. For the second contrast, there was no significant increase in intentions to

preserve the relationship in the overcompensation condition compared to the equal compensation condition, including both the apology condition, $F(1, 239) = 0.02$, *n.s.*, $\eta^2_p = .00$, and the no apology condition, $F(1, 239) = 0.64$, *n.s.*, $\eta^2_p = .00$. These final results support our predictions in *Hypotheses 1*, *2*, and *3*.

Table 2. Means and standard deviations for each condition in Study 2 ($N = 247$).

Compensation condition	Apology condition					
	No apology		Apology		Total	
	M	*SD*	*M*	*SD*	*M*	*SD*
No compensation	2.66	1.00	2.70	1.10	2.68	1.04
Undercompensation	3.22	1.07	3.73	0.73	3.48	0.94
Equal compensation	4.40	0.73	4.19	0.84	4.29	0.79
Overcompensation	4.43	0.90	3.99	1.22	4.24	1.06
Total	3.62	1.22	3.61	1.14	3.61	1.18

Note. Higher mean scores indicate greater intentions to preserve the relationship.

Discussion

Study 2 provides further evidence that in financial exchanges, apologies increase the effectiveness of undercompensation as a means to preserve a relationship. Furthermore, as expected, the results show that undercompensation is less effective than equal compensation, and equal compensation is as effective as overcompensation in preserving relationships.

General discussion

An unfair division of available resources can lead to mistrust, disappointment, and anger between the parties involved, which makes forgiveness

and relationship preservation less likely to occur (Bradfield & Aquino, 1999; McCornack & Leveni, 1990). Therefore, it is important to understand the mechanisms by which relationship preservation can be enhanced in such situations. Prior research has revealed that in interdependent situations, allocators can make use of repair strategies that address the recipient's financial interests (i.e., financial compensation; see Desmet et al., 2011) or strategies that address relational interests (i.e., apologies; see De Cremer, 2002; Lax & Sebenius, 1986). Both strategies are thought to be successful because they signal that the allocator takes responsibility for the transgression and is trying to reduce the harm that has been performed by the transgression. This idea was confirmed by Bottom et al. (2002), who identified financial compensation, explanations, and apologies as effective strategies to enhance cooperation. Although prior research has suggested that financial compensation alone may not be sufficient to effectively restore the relationship (e.g., Curhan et al., 2006; De Cremer, 2002), the research to date has neglected to study if and when there is a simultaneous effect of financial compensation and apologies on relationship preservation.

The present studies had two important aims. The first aim was to investigate the relationship between the amount of compensation and the extent to which the relationship was preserved. The second aim was to demonstrate that in cases of undercompensation, non-financial means can have an important secondary value in preserving relationships. We tested our hypotheses in two studies that presented a financial allocation situation. In both of these studies, the participants played the role of the recipient in a dictator game with a simulated allocator. The allocator inflicted financial harm on the recipient in the first phase of the experiment, that he or she then tried to minimalize or undo by offering an apology (or not) and/or financial compensation (or not).

Our hypotheses were confirmed by the results. Both of our studies showed that the participants who received equal compensation or overcompensation had greater intentions to preserve the relationship than the participants who received undercompensation (*Hypothesis 1a*). These results corroborate previous research that revealed that financial compensation encourages relationship repair, and greater compensation elicits more favorable reactions than lesser compensation (Desmet et al., 2011). From an economic perspective, greater compensation should result in higher tendencies toward relationship preservation. However, both of our studies revealed that overcompensation does not increase intentions to preserve the relationship more than equal compensation does (*Hypothesis 1b).* This result corroborates the findings of Desmet et al. (2011), that showed similar effects of compensation size on trust restoration when the initial malicious intentions of the allocator were clear to the recipient.

Further, both of our studies showed that the participants' intentions to preserve the relationship with the allocator were higher after receiving undercompensation with an apology than after receiving undercompensation without an apology (*Hypothesis 2*). From a relational perspective, these results confirm that in cases of undercompensation, when compensation alone is insufficient to reach equality, an apology offers important additional value in preserving relationships. In other words, in these situations, apologies constitute a non-financial means to preserve relationships. Furthermore, the results of Study 2 revealed that apologies did not promote relationship preservation in the context of equal compensation *(Hypothesis 3a)* or overcompensation *(Hypothesis 3b)*. Hence, when an allocator provides the necessary financial means to satisfy or exceed the equality norm, there is no need for additional non-financial strategies to preserve the relationship.

In the remainder of the discussion, we focus on the relative importance of financial and non-financial motives of the people who have to decide whether to

preserve the relationship with a party who harmed them financially. We also discuss the relationship between the amount of compensation and the willingness to preserve the relationship. Finally, we describe in depth some limitations of the present studies.

Financial and relational motives

Classical economic theory assumes that people are both rational and selfish (i.e., maximize their own outcomes), while other motives are largely ignored (Camerer & Thaler, 2003; Dawes & Thaler, 1988). The present studies, however, highlight that financial outcomes alone may not be sufficient to understand relationship preservation. Rather, our findings are in line with the idea that people's appreciation of restoration attempts also depends on fairness concerns, such as fair treatment and respect (see Bies & Moag, 1986; Tyler & Bies, 1990). Compensation particularly resulted in greater relationship preservation if it restored equality, and the impact of further compensation beyond that was limited, and far smaller than the impact of failing to restore equality (cf. Loewenstein et al., 1989). Moreover, relationship preservation could further be bolstered by apologies, at least in cases of undercompensation. As such, the present findings are in line with research that stresses the importance of appealing to relational motives in order to achieve trust repair (Bottom et al., 2002; Lazare, 2004; Kim et al., 2009).

The provision of apologies did not universally facilitate relationship repair. Its impact was limited in situations where equality was met or exceeded, or when no compensation was given. How can these findings be understood, in light of previous research that has indicated that apologies alone (i.e., without financial compensation) can promote reconciliation (e.g., Bottom et al., 2002; Exline, Deshea, & Holeman, 2007; Ohbuchi, Kameda, & Agarie, 1989)? Scholars have argued that when actors enter in an economic exchange situation (like the dictator game), which mainly consists of resource allocations between two or more agents, trust is typically

calculus-based (i.e., outcome-related concerns imply that broken trust can be repaired most effectively by financial strategies, such as a financial compensation) rather than identification-based (i.e., trust driven by affect and interpersonal concerns – which implies that broken trust can be repaired most effectively by relational strategies, such as an apology; see Rousseau, Sitkin, Burt, & Camerer, 1998; Lewecki et al., 2005). Accordingly, Joskowicz-Jabloner and Leiser (2011) reported that different betrayal-domains lead to different negative emotions and different strategies to relieve these emotions. More specifically, for the social norms domain (i.e., trust-betrayal between strangers), emotions of indignation and anger are strongest and financial strategies, such as a financial compensation, reduce these emotions most effectively. For the personal domain (i.e., trust-betrayal in an ongoing interpersonal relationship), however, emotions of disappointment and hurt are strongest and non-financial strategies, such as an apology, reduce these emotions most effectively.

In the present context, where transgressions occurred in an economic exchange situation between strangers (see Desmet et al., 2011; Joskowicz-Jabloner & Leiser, 2011), these processes suggest that financial outcomes are likely to have dominated evaluations, thereby reducing the impact of apologies in situations where the distributive injustice is already redressed (i.e., after equal compensation or overcompensation). The impact of apologies may similarly have been reduced when no compensation is given, as in this situation – contrary to previous research – the allocator is offering no compensation despite being capable of fully compensating the recipient. Therefore, in the present context, an apology could even be seen as hypocrisy, because of the apparent contradiction between words (expressing regret) and behavior (giving nothing). In sum, these notions suggest that relational strategies, like apologies, might have a stronger impact on relationship repair in contexts that are less economic, such as in non-financial situations, or in interactions

among partners or friends in ongoing relationships. Nevertheless, the present findings illustrate that even in a strongly financial frame, relational means can contribute to relationship preservation. Hence, the present research underlines the importance of relational motives in economic situations, and shows that even undercompensation can be persuasive, as long as the allocator takes responsibility for unfair behavior by showing remorse.

Towards a model of the relative values of financial compensation and apologies

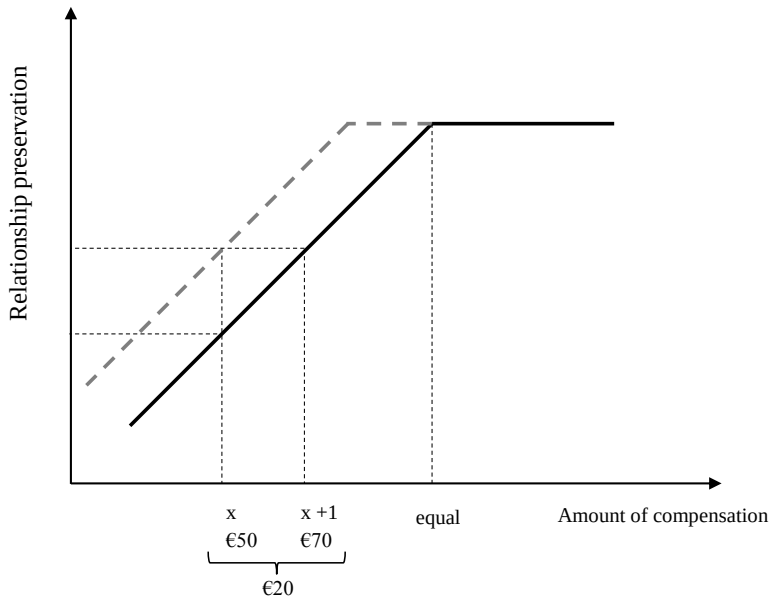
We were the first to investigate the impact of different compensation sizes and apologies on relationship repair simultaneously. Our findings can be captured in a more general model. Because people want equality to be restored they respond positively to equal compensation and overcompensation, which implies that the outcome *an sich* is not the most important. This idea is also evident from the study of Loewenstein et al. (1989), who demonstrated that the utility that people derive from advantageous inequality is by far exceeded by the disutility they derive from disadvantageous inequality.

In this respect, in the aftermath of distributive harm, the offer of an additional equal compensation or overcompensation provides (post-hoc) satisfaction of the equality norm, because the compensation readdress the initial state of disadvantageous inequality. Implicitly, this means that allocators distance themselves from their previous unfair behavior, by eventually conforming to (or exceeding) the applicable standard. This dissociation encourages the repair of the damaged or broken relationship. Moreover, there is a positive (linear) relationship between the amount of financial compensation and the level of relationship preservation until the level of equal compensation, after which the curve flattens. Thus, once equality is reached, an additional action by the transgressor has no additional value in promoting the relationship; however, if equality has not been reached (i.e. in cases of undercompensation) there is still room to encourage the

repair of the broken or damaged relationship. For this reason, the impact of relational strategies, such as apologies, will especially be pronounced when the point of equality is not yet reached. Stated otherwise, undercompensation combined with an apology is considered fairer – and consequently closer to the equality norm – than undercompensation without an apology.

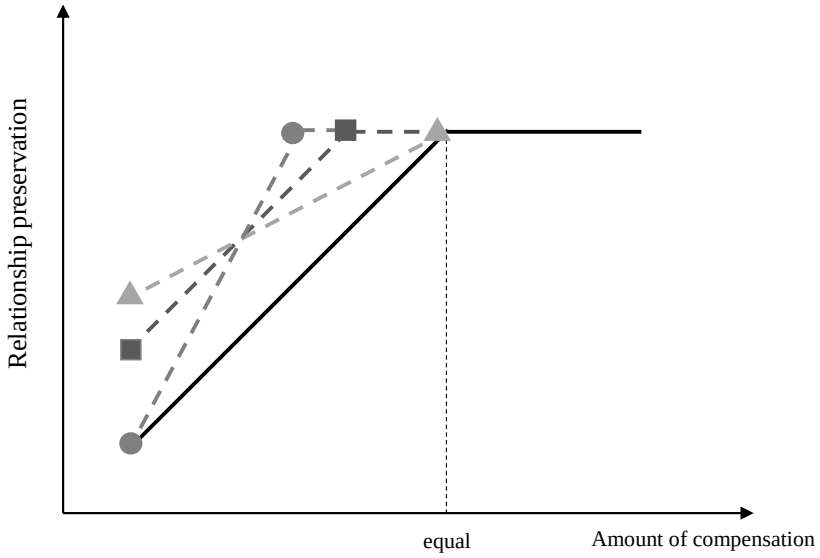
As seen in Figure 1, apologies help to encourage relationship preservation, such that the value of a particular amount of resources used as compensation (e.g., 'x', or 50 euro) increases up to a higher level of compensation (e.g., 'x + 1', or 70 euro). In other words, in this model, apologies can be expressed in terms of how much monetary value can be saved to preserve the relationship (e.g., 20 euro).

Figure 1. The relationship between the amount of compensation and relationship preservation.
Note. The solid line indicates financial compensation and the dashed line indicates the additional value of an apology.



As seen in Figure 2, one possibility is that over the continuum of possible undercompensation values, apologies represent a constant which should simply be added to the effect of undercompensation (curve a). Another possibility, also depicted in Figure 2, is that the power of apologies to preserve a relationship depends on the amount of compensation, such that apologies become more effective when the point of equality is approached (curve b), or a reversed pattern might even emerge (curve c).

Figure 2. Three possibilities for the additional value of an apology on relationship preservation. *Note. The solid line indicates financial compensation and the dashed lines indicate the additional value of apologies: the dashed line and square indicate curve a; the dashed line and circle indicate curve b; the dashed line and triangle indicate curve c.*



To test this more general model, further studies should systematically vary the amount of extra resources offered by the allocator, which would allow mapping of the relative contributions of apologies and compensation in preserving a

relationship. Furthermore, the added value of an apology to a financial compensation for relationship preservation could potentially be influenced by other factors that are involved in relationship repair. Here, we can think of potential mediators, such as perceived remorse and perceived admittance (see Barclay & Skarlicki, 2008; Scher & Darley, 1997), reaffirmed respect and status of the victim (see Barclay & Skarlicki, 2008), forgiveness (see McCullough, 2000; McCullough et al., 1998, 2006), and trust (see Kramer, 1999; Kramer & Tyler, 1996; Lorenz, 1999; Zaheer & Venkatraman, 1995), and potential moderators, like the specific situation (e.g., economic vs. non-economic situation; see Desmet et al., 2011), the transgression type (e.g., integrity- vs. competence-based trust violation; see Ferrin, Kim, Cooper, & Dirks, 2007; Kim et al., 2004), and relationship closeness (e.g., transgressor is a stranger vs. a friend; see Joskowicz-Jabloner & Leiser, 2011).

Limitations

Before closing, some limitations must be discussed. First, both of our studies made use of a dictator game. The dictator game has the advantage that the recipient is not able to reject the offer, which allowed us to directly assess the separate impacts of financial compensation and apologies when the outcomes were identical for each participant (see De Cremer, 2010). A downside to this procedure is that real-life situations are often more complex. For example, some recipients may enact vengeance or avoid further contact before the allocator has had the chance to fix the harm. Moreover, the dictator game is an economic situation, in which outcome-related concerns are particularly salient. This means that although our findings reveal that particularly strategies that address financial outcomes are effective as means to restore relationships, it is possible that relational strategies would be more effective in non-economic situations. Therefore, while the present studies provide a useful starting point to understand the impacts of economic and relational strategies on the repair of relationships, future research should examine these strategies in

more complex settings (e.g., using the ultimatum game) and in more relational contexts (e.g., non-financial decisions and ongoing relationships).

Secondly, to be able to investigate relationship preservation in the aftermath of distributive harm, it is important that recipients experience the allocator's decision about the division of the available resources as a transgression. Previous studies, however, indicate that attributing transgressions to clear malicious intent is associated with a decline in forgiveness (Boon & Sulsky, 1997) and trust (Desmet et al., 2011). This implies that in our studies there could be an effect of perceived intentionality of the transgressor, e.g., in terms of blame attribution (see Shaver, 1985). Therefore, further research should take the intentionality of the transgression into account.

Finally, the exact mechanism through which an apology exerts its positive influence on relationship preservation in cases of undercompensation remains unclear in our studies. Therefore, a valuable avenue for future research would be to examine the different factors that can explain the added value of an apology in addition to financial undercompensation for relationship repair.

Conclusion

The present studies show that when financial harm has been inflicted in an economic context, financial strategies (i.e., financial compensation) and relational strategies (i.e., apologies) play roles in preserving relationships. More specifically, apologies encourage the preservation of the relationship after an unfair resource allocation followed by an offer of financial compensation that is too low to satisfy the equality norm.

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Chapter 8

The Impact of Decision Timing on the Effectiveness of Leaders' Apologies to Repair Followers' Trust in the Aftermath of Leader Failure

Abstract

The aim of the present research was to investigate how a negative decision outcome generated by a leader in a hasty, timely, or delayed manner impacts upon the need for, and the effectiveness of apologies to restore followers' trust. In the aftermath of a leader's failure, followers experienced a delayed incorrect decision as a more severe transgression than a hasty or a timely incorrect decision. This effect was mediated by procedural fairness concerns (Study 1). The present findings also revealed an interesting paradox. Specifically, in the delayed condition followers expressed the highest need for an apology (Studies 2 and 3), but at the same time expected an apology to be less effective for enhancing trustworthiness than in the timely and the hasty condition (Study 3). Moreover, we also showed that the actual provision of an apology was effective for restoring both trustworthiness (Study 4) and trust (Studies 4 and 5) in the timely and the hasty condition, but ineffective in the delayed condition. The present research shows that when the outcome of a decision is uncertain, it is better to make a decision (too) soon rather than (too) late.

This chapter is based on Haesevoets, T., Joosten, A., Reinders Folmer, C., Lerner, L., De Cremer, D., & Van Hiel, A. (2016). The impact of decision timing on the effectiveness of leaders' apologies to repair followers' trust in the aftermath of leader failure. *Journal of Business and Psychology, 31*(4), 533-551.

Introduction

On almost a daily basis leaders have to make decisions that can either benefit or harm their organization, their employees, and themselves (Messick & Bazerman, 1996). When leaders make inadequate decisions a host of negative consequences may arise, which can hamper followers' future collaboration and compliance (De Cremer, 2013). Importantly, prior research has also indicated that leader failure decreases followers' confidence and trust in this leader (Robinson & Rousseau, 1994). Trust is an important element of organizational functioning and influences leadership effectiveness considerably (see Dirks & Ferrin, 2002), and for that reason leaders need to be able to restore trust once it is violated. One relevant way to address trust violations in an effective way is through the delivery of an apology (Lazare, 2004).

In the present paper, we investigated the type of transgressions that can be restored through the use of apologies in the context of dyadic leader-follower relationships. We aim to show that, in the case of an incorrect decision by a leader, the timing of *when* the decision was made can influence how much a trust repair strategy (by means of delivering an apology) is needed. Did the leader make the incorrect decision in a hasty, timely, or delayed fashion? Leaders can quickly make decisions but can also miss deadlines for those same decisions. Although not much research attention has been devoted to the issue of timeliness in explaining leadership effectiveness, prior research has revealed that delayed decisions lead to negative consequences in terms of organizational performance and leadership perceptions (e.g., Cha & Edmonston, 2006; Gilliland, 1993; Truxillo, Bauer, Campion, & Paronto, 2002). The present research aimed to show that the timing of a leader's incorrect decision also influences the effectiveness of an apology for enhancing trust repair.

Trust in leader-follower relationships

Almost any decision or exchange that we engage in includes some sort of trust evaluation, either towards a person, an organization, or even society as a whole. As

such, trust represents a fundamental ingredient to coordinate and facilitate social relationships (Bohnet & Croson, 2004). In this regard, the integrative model of Mayer, Davis, and Schoorman (1995) makes an important conceptual distinction between trustworthiness and trust. *Trustworthiness* is a multidimensional construct that comprises the ability, benevolence, and integrity of the trustee (Colquitt, Scott, & LePine, 2007; Mayer et al., 1995). These three facets are viewed as antecedents of *trust*, which has been defined as the intention to accept vulnerability based on positive expectations of the actions of another person (Rousseau, Sitkin, Burt, & Camerer, 1998). In the current contribution, we take trustworthiness and trust into account when investigating the reconciliation process in the aftermath of leader failure, because the leader-member exchange theory describes both these concepts as crucial elements of effective relationships between leaders and their followers (see Liden & Graen, 1980).

Indeed, researchers have identified the presence of trust as a critical prerequisite for leaders to empower their followers (see Gómez & Rosen, 2001; Mayer et al., 1995). Because of high trust employees effectively complete their jobs and go above and beyond the call of duty in their work without clear compensation (Dirks & Skarlicki, 2004). In addition, a meta-analysis of Dirks and Ferrin (2002) revealed that trust in leadership also has significant positive relationships with employees' outcomes, including organizational citizenship behavior, job satisfaction, and commitment to the leader's decisions. Yet, in everyday life leaders are confronted with many challenging situations which offer numerous opportunities for violating their followers' trust. One way in which leaders may violate trust is by making decisions that fail to reach desired goals and subsequently produce unfavorable outcomes for their followers. Acknowledging the ubiquity of such leaders' failures, a vital question that arises is how followers' trust can be regained in the aftermath of leader failure.

Trust repair: The use of apologies

The trust repair strategy that received by far the most research attention is the provision of an apology (De Cremer, 2010). An apology is generally defined as a combined statement of an acknowledgement of wrongdoing and an expression of guilt (Lazare, 2004). Another crucial element of a persuasive apology is an explicit promise of future trustworthy behavior (Scher & Darley, 1997). In the aftermath of a trust violation, an apology can thus be seen as an adequate response because it implies that the transgressor distances him- or herself from prior actions.

A considerable body of research has shown that offering a sincere apology might indeed be an effective strategy to enhance trust (e.g., Ohbuchi, Kameda, & Agarie, 1989; Schwartz, 1978; Tomlinson, Dineen, & Lewicki, 2004). Specifically, these studies found that transgressors who apologize are rated more favorably and as less culpable than transgressors who do not apologize. However, evidence is growing that apologies do not always facilitate the repair of trust (De Cremer & Desmet, 2012). The theory of impression management suggests that apologies can be ineffective due to the acknowledgment of guilt (Schlenker, 1980). In line with this theory, Sigal, Hsu, Foodim, and Betman (1988) found that a denial of misconduct is a more effective strategy to obtain votes for a political candidate than the provision of an apology. Moreover, prior research revealed that the type of violation plays a crucial role in determining whether apologies are effective to repair broken trust (e.g., Ferrin, Kim, Cooper, & Dirks, 2007; Kim, Dirks, Cooper, & Ferrin, 2006; Kim, Ferrin, Cooper, & Dirks, 2004). Specifically, apologies are effective to enhance trust after a competence-based trust violation. However, when the transgression reflects a lack of integrity (such as the sexual or financial misconduct in the study of Sigal and colleagues) apologies are ineffective to repair broken trust. A similar result was obtained by Leunissen, De Cremer, Reinders Folmer, and van Dijke (2013), who found that an apology leads to more forgiveness after unintentional than after intentional transgressions. However, apologies may not only be ineffective, but even counterproductive. In this regard,

Kellogg (2007) has referred to apologies as "highly risky strategies" that can make "a bad situation worse" (p. 21). Empirical research supports the idea that apologies can backfire and lead to a further decline of trust (Skarlicki, Folger, & Gee, 2004).

How can the mixed results of these prior studies be explained? Previous research has shown that the effectiveness of an apology as a means to repair broken trust is dependent on whether people are willing to rebuild their relationship with the transgressor (Tomlinson et al., 2004). This willingness strongly depends on *how* the trust violation occurred. Although much is known about how the type of violation (for instance in terms of competence versus integrity or unintentional versus intentional violations) influences the trust repair process, a crucial category of organizational trust violations − that is, delayed decisions and missed deadlines − has not yet been examined. In the present research, we argue that a leader's decision timing, another important dimension of transgression, is a crucial antecedent of whether apologies will be able to positively influence trustworthiness and trust.

The role of decision timing

There is some prior research that indicated the importance of the role of timing for the trust repair process. In this venture, Lount, Zhong, Sivanathan, and Murnighan (2008) found that the timing of a trust breach (i.e., whether the breach occurred at an early or later phase of the relationship) influences the restoration process. Investigating another aspect of timing, Frantz and Benningson (2005) reported that whether an apology was offered at the beginning or the end of a conversation impacts its effectiveness to enhance recovery. Specifically, these studies revealed that getting off on the wrong foot has especially devastating long-term consequences for trust and that later apologies are more effective to restore trust than earlier ones. However, no previous studies investigated how the *timing of an incorrect decision* influences the need for and the effectiveness of apologies as a trust repair strategy. This lack in the literature is regretful because leaders are regularly confronted with deadlines. Delays

thus appear to be a ubiquitous problem for organizations (De Cremer, 2013; Tukel & Rom, 1998), making attempts to repair trust under such circumstances highly relevant. With regard to the timing dimension, leaders' decisions can either be generated *hasty* (when the decision is made too early, without considering all relevant information), *timely* (when the decision is made at the appropriate or opportune moment in time), or *delayed* (when the decision is made too late, for example after the passing of a predefined deadline).

What happens when decisions are delivered in a timely fashion, too soon, or too late? Hogan and Kaiser (2005) have argued that "good leaders make good decisions in a timely way" (p. 173). In line with this statement, timeliness has been associated with positive outcomes in terms of leadership effectiveness and organizational performance (see Bluedorn & Denhardt, 1988; Jacobs, 2005; Snowden & Boone, 2007). With regard to the outcomes of decisions, from this literature it is not clear whether these positive consequences are only applicable to timely decisions that had positive outcomes, or also when the outcome of the decision process was negative. With regard to the consequences of *hasty* decisions the results are more mixed. On the one hand, some studies have shown that an overly fast decision-making style may reflect negatively upon leaders (e.g., Gavin & Roberto, 2001). On the other hand, there are also studies which have indicated that a fast decision-making style is positively related to organizational performance, as fast decisions are associated with efficiency and effectiveness (e.g., Bluedorn, 2002). With respect to *delayed* decisions, the results of previous studies are more straightforward. People have a strong aversion for delays, especially when a delay affects desired outcomes and incur costs (Blount & Janicik, 2001). Postponing a decision can lead to important deadlines being missed, which can have severe consequences for team processes and outcomes (Mohammed, Hamilton, & Lim, 2009). Moreover, leaders who employ a delayed decision-making style are perceived as ineffective, lazy, and even hypocritical (Cha & Edmonston, 2006).

Taken together, these studies show that particularly a *delayed* decision-making style is harmful for leadership effectiveness and social reputation. What is interesting to note, however, is that timing of a decision in most studies refers to the process of making decisions, and does not necessarily imply positive or negative outcomes. Below, we argue that the timing dimension will be highly relevant to followers in cases where they suffer negative outcomes due to a leader's (hasty, timely, or delayed) erroneous decision.

Being wrong *and* too late: Implications for trust repair

From a purely instrumental perspective, followers should not care about the leader's decision timing when this decision failed to reach a desired outcome. Indeed, in such instances the leader's decision generated a negative outcome, regardless of the timing of this decision. However, people are not only influenced by the outcomes of a decision, but also by the way the decision has been reached. The distinction between distributive and procedural fairness helps to understand why decisions that are incorrect *and* delayed are not well received. Distributive fairness refers to the perception of fairness of received outcomes and allocations (Cropanzano & Ambrose, 2001). Yet, people's satisfaction with tangible outcomes is also determined by the degree to which fair procedures are applied in order to arrive at this outcome. Procedures are considered fair when, for example, they are free from bias and when accurate information is collected and used in the decision process (Leventhal, Karuza, & Fry, 1980).

Rutte and Messick (1995) suggested that when people's outcomes are unfavorable, they start to "search for one or more rules that were violated" (p. 247). Particularly relevant in the present context is the finding that when outcomes are negative and distributive fairness is at a low level, people are especially influenced by and concerned with procedural fairness (Brockner & Wiesenfeld, 1996). Hence, when a leader's decision hurts the interests of his or her followers, followers will pay special attention to the way in which the decision was made. In this respect, timeliness can be

considered as an important dimension for evaluating procedural fairness (e.g., Bies & Moag, 1986; Sapienza & Korsgaard, 1996).

Indeed, recent justice research investigating the speed of decision-making as a procedural fairness principle found that overly slow decision-making processes trigger perceptions of unfairness (see Valkeapää & Seppälä, 2014; see also Gilliland, 1993; Truxillo et al., 2002). When decisions last much longer than expected, uncertainty increases and people may start looking for parties at fault and possible reasons for the delays (Lind, 2001). Similarly, a fast decision process might also be perceived as unfair as it indicates that there might be problems in the adherence of proper decision-making procedures, as full adherence to procedural fairness principles takes time (Scott, Colquitt, & Paddock, 2009). Consequently, fast decision-making processes could also be negatively related to perceived fairness. Yet, the study of Valkeapää and Seppälä provides initial evidence that the negative effects of delayed decisions, in terms of lowered procedural fairness concerns, are more pronounced than the negative effects of hasty decisions. This finding can be explained when taking the concept of uncertainty into account. Indeed, a slow decision creates both uncertainty in the short-term (greater time spent under uncertainty) and long-term (concerns about the quality of the decision-making process), while a fast decision creates only concerns about the quality of the decision-making process as it minimalizes short-term uncertainty (see Valkeapää & Seppälä, 2014). In sum, it can thus be expected that, compared to timely decisions, especially delayed decisions will lead to low procedural fairness perceptions.

A range of studies found that negative reactions are most prominent when low distributive fairness is accompanied by unfair procedures (for an overview, see Brockner & Wiesenfeld, 1996). Put otherwise, the combination of low procedural fairness and low outcome favorability engenders the most negative reactions. Hence, in the aftermath of a leader failure which results in a negative decision outcome, followers will react most negatively when the procedural aspects of the decision-making process

have not been well secured, like when a decision is not reached in a timely fashion. These negative reactions occur because unfair procedures convey information about one's poor reputation and social standing in the group (see De Cremer & Tyler, 2005; Tyler & Lind, 1992). In the present research we solely focused on timing effects in the case of incorrect decisions.

Hypotheses

Based on the theoretical framework presented above, it can be argued that when a delayed decision results in a negative outcome, this can be seen as especially harmful as not only outcome-related concerns, but also procedural fairness concerns are violated. Hence, in case of a delayed incorrect decision a double transgression has occurred, while in case of a timely incorrect decision solely outcome-related concerns are violated (i.e., a single transgression). Note that in case of a hasty incorrect decision procedural fairness concerns might also be violated, but to a lesser extent than after a delayed incorrect decision (cf. Valkeapää & Seppälä, 2014). This reasoning led us to the following hypotheses:

Hypothesis 1a: A delayed incorrect decision is perceived as a more severe transgression than when the same incorrect decision is generated in a timely or a hasty manner.

Hypothesis 1b: Procedural fairness concerns mediate the effect of a delayed incorrect decision (versus a timely and a hasty one) on harm severity.

With regard to the trust repair process, an apology communicates that the transgressor feels remorse and is willing to take responsibility for maintaining the relationship (Scher & Darley, 1997). Apologies are therefore considered a very effective mitigating account, which makes wrongs look a bit more right by working on relational needs (Bobocel & Zdaniuk, 2005). Moreover, in the forgiveness literature it is reported that harm severity strengthens the need for and relevance of actions that

promote forgiveness (Pronk, Karremans, Overbeek, Vermulst, & Wigboldus, 2010). Based on this literature, we formulated the following hypothesis:

Hypothesis 2: In the aftermath of a leader's failure, followers have a higher need for an apology when the leader made the incorrect decision that led to a negative outcome in a delayed way, than when this same negative outcome was generated in a timely or a hasty manner.

Regarding the effectiveness of apologies as a trust repair strategy, two competing hypotheses can be formulated. A first explanation is based on need satisfaction. When people experience a high need for an apology, it can be reasonably expected that the offer of an apology satisfies this need, which should lead to a host of positive reactions. Indeed, need satisfaction increases well-being, engagement, and self-esteem; an effect that can certainly be expected in the context of social relationships and social needs (Ryan & Deci, 2000). This explanation leads to the following hypothesis:

Hypothesis 3a: In the aftermath of a leader's failure, an apology is more effective for enhancing trustworthiness and trust repair after a delayed decision than after a timely decision or a hasty decision.

A second possibility, however, is that even though people express a high need for an apology after an incorrect and delayed decision, an apology will not be very effective under these circumstances. In this vein, studies on forgiveness have shown that harm severity lessens the effectiveness of apologies as a reconciliation strategy (Schlenker, 1985; Schoenbach, 1990). Here also, the need for trust restoration is at its highest level, but the effectiveness of an apology is hampered. Moreover, research of Ohbuchi and colleagues (1989) revealed that when the harm is more severe, the effectiveness of apologies was attenuated.

Additionally, prior research has revealed that the presence versus absence of an apology is strongly linked to individuals' perceptions of interactional fairness (see Goodwin & Ross, 1992; Smith, Bolton, & Wagner, 1999). Interactional fairness reflects the degree to which the people who are affected by certain decisions are treated with dignity and respect (Bies & Moag 1986; Goodwin & Ross, 1992). In this regard, previous studies which focused on the different fairness dimensions (i.e., distributive, procedural, and interactional) in the context of service recovery demonstrated that a financial compensation (which often enhances distributive fairness) is less effective for enhancing recovery when the other two dimensions of fairness are evaluated poorly (e.g., Blodgett, Hill, & Tax, 1997; Tax, Brown, & Chandrashekaran, 1998). In the context of the present research in which the leader's incorrect decision violated followers' outcome-related concerns (i.e., distributive fairness is thus low), it can similarly be expected that the provision of an apology (which can be seen as a recovery tool that aims to improve interactional fairness) is less effective as a means to repair trust when combined with low levels of procedural fairness (like when the decision is generated in a delayed manner) than when combined with moderate or high levels of procedural fairness (like in the case of a hasty and a timely decision). The following hypothesis can thus be formulated:

Hypothesis 3b: In the aftermath of a leader's failure, an apology is less effective for enhancing trustworthiness and trust repair after a delayed decision than after a timely decision or a hasty decision.

The present studies

We conducted five empirical studies that investigated how a negative decision outcome generated by a leader in a hasty, timely, or delayed manner impacts upon the trust repair process. More precisely, Study 1 was set up with the goal to investigate if a delayed incorrect decision is indeed perceived as a more severe transgression than a

timely or a hasty incorrect decision. In this study, we also explored the mediating role of procedural fairness concerns. Next, in Studies 2 and 3, we examined in which decision timing condition followers had the highest need for an apology. Additionally, in Study 3 we examined differences among timing conditions in when followers expected an apology to be the most effective for enhancing trustworthiness. Finally, in Studies 4 and 5 the effectiveness of an actual apology (versus no apology) was investigated.

Study 1

Method

Participants and design

A sample of 82 US employees (53 men, 29 women, M_{age} = 31.55, *SD* = 8.88), which were recruited through Amazon Mechanical Turk, completed an online scenario study in exchange for payment ($0.50). This platform has been demonstrated to be an appropriate method for recruiting subjects (see Buhrmester, Kwang, & Gosling 2011; Hauser & Schwarz, 2015). To safeguard data quality, we implemented multiple response reliability checks spread throughout the study (see Oppenheimer, Meyvis, & Davidenko, 2009). All participants answered these check questions correctly. The participants worked at least 12 hours per week and had a direct supervisor at work. On average, the participants worked for 4.30 years (*SD* = 4.23) in their current organization. They were randomly assigned to one condition of a 3-level (decision timing: hasty vs. timely vs. delayed) between-subjects design.

Procedure

Participants were presented with a scenario about their supervisor at work. In this scenario, participants were asked to imagine as vividly as possible that the following situation happened to them: "Your supervisor made an incorrect decision

which resulted in a negative outcome for you. As a result of this incorrect decision by your supervisor you received an unfavorable outcome."

Manipulation of decision timing

In the *hasty* condition, participants subsequently read the following text: "This incorrect decision was generated by your supervisor in a hasty manner. That is, the decision was made very fast and you hardly had to wait before the decision was reached." For participants in the *timely* condition, it was stated that: "This incorrect decision was generated by your supervisor in a timely manner. That is, the decision was made at the appropriate moment in time and you only had to wait for a little while before the decision was reached." Finally, in the *delayed* condition, participants learned that: "This incorrect decision was generated by your supervisor in a delayed manner. That is, the decision was made very slow and you had to wait for a long time before the decision was reached." It is hard to investigate the effects of delays in the context of a scenario study because participants do not actually experience the delay. Therefore, in the delayed decision condition we added the following sentences in order to strengthen our timing manipulation: "Hence, it took your supervisor a very long time before he or she finally made a decision. Moreover, your supervisor was urged several times to make a decision, but he or she kept postponing the decision."

Measures

Procedural fairness. Participants were asked to evaluate the decision-making procedures employed in the leader's decision with the procedural fairness scale of Valkeapää and Seppälä (2014). This scale consists of ten items, but one item (i.e., "Decisions are made in cabinets") was excluded because it is not applicable to our study context. Before answering the scale participants were provided with the following information: "Your supervisor made an incorrect decision that negatively affected you. However, this decision might also have had consequences for other

people who were also affected by this decision. To what extent do you think that your supervisor has made this incorrect decision so that" followed by the items. Sample items are: "All parties were treated equally in the decision-making process" and "Everyone concerned had the opportunity to participate in the decision-making process" (1 = *not at all*, 7 = *very much*). The items were aggregated into a general measure of procedural fairness (*M* = 3.25, *SD* = 1.26, Cronbach's α = .92).

Harm severity. Next, the degree to which participants perceived the supervisor's incorrect decision as a severe transgression was measured with a self-developed scale that consists of six items. Specifically, we asked participants: "To what extent do you find your supervisor's decision a severe / harsh / serious / mild / soft / weak transgression" (1 = *not at all*, 7 = *very much*). The latter three items were reverse coded and subsequently the six items were combined into a general measure of harm severity (*M* = 4.47, *SD* = 1.27, Cronbach's α = .84).

Manipulation check. Finally, we checked the effectiveness of the decision timing manipulation with the following manipulation check: "How did your supervisor reach the decision?" (1 = *in a fast manner*, 7 = *in a slow manner*; *M* = 4.13, *SD* = 2.25).

Results

Manipulation check

We tested the effectiveness of our decision timing manipulation using a 3-level (decision timing: hasty vs. timely vs. delayed) analysis of variance (ANOVA). The main effect of decision timing was significant, $F(2, 79) = 225.93$, $p < .001$, $\eta^2_p = .85$. A post hoc test (LSD) showed that participants in the *delayed* condition (*M* = 6.78, *SD* = 0.70) considered the decision as generated more slowly (*p*s < .001) than participants in the *timely* condition (*M* = 3.90, *SD* = 0.41) and those in the *hasty* condition (*M* = 1.65, *SD* = 1.32). Moreover, participants in the *timely* condition considered the decision to be reached more slowly than participants in the *hasty*

condition ($p < .001$). These results indicate that our decision timing manipulation was effective.

Procedural fairness

A 3-level (decision timing) ANOVA on perceived procedural fairness showed a significant main effect of decision timing, $F(2, 79) = 6.17$, $p = .003$, $\eta^2_p = .14$. A post hoc test (LSD) showed that participants in the *delayed* condition ($M = 2.65$, $SD = 0.95$) perceived the decision as less procedural fair ($ps < .05$) than participants in the *timely* condition ($M = 3.76$, $SD = 1.48$) and those in the *hasty* condition ($M = 3.30$, $SD = 1.04$). Participants in the *hasty* and the *timely* condition did not differ significantly from each other ($p = .160$).

Harm severity

A 3-level (decision timing) ANOVA on perceived harm severity also showed a significant main effect of decision timing, $F(2, 79) = 7.09$, $p = .001$, $\eta^2_p = .15$. In agreement with *Hypothesis 1a*, a post hoc test (LSD) showed that participants in the *delayed* condition ($M = 5.15$, $SD = 1.04$) experienced the incorrect decision as a more severe transgression ($ps < .007$) than participants in the *timely* condition ($M = 4.27$, $SD = 1.33$) and those in the *hasty* condition ($M = 3.97$, $SD = 1.16$). Again, participants in the *hasty* and the *timely* condition did not differ significantly from each other ($p = .359$).

Mediating role of procedural fairness

Because the correlation between procedural fairness and harm severity was high ($r = -.56$, $p < .001$), we first checked whether these scales could be distinguished from each other by extracting two components from the inter-correlations among the items of both scales. The two extracted factors had an eigenvalue of 7.31 and 1.87 (explained variance of 48.76% and 12.49%, respectively). As expected, all nine procedural fairness items loaded on a first component (all component weights > .65, except one item which had a weight of

.35), while the six harm severity items constituted a second, distinctive component (all component weights > .53).

To test whether procedural fairness mediates the effects of decision timing on harm severity, we followed Hayes and Preacher's (2014) analysis strategy to calculate direct and indirect effects using a multicategorical predictor (by employing the SPSS macro MEDIATE). For the dummy that contrasted the *delayed* condition with the *timely* condition the mediation analysis confirmed that the indirect effect of decision timing on harm severity via procedural fairness was significant (b = -0.58, SE = 0.18, 95% CI: [-0.94, -0.22]). The direct effect of decision timing on harm severity became non-significant for this dummy (b = -0.30, SE = 0.29, p = .308). Moreover, the mediation analysis confirmed that for the dummy that contrasted the *delayed* condition with the *hasty* condition the indirect effect of decision timing on harm severity through procedural fairness was also significant (b = -0.34, SE = 0.16, 95% CI: [-0.68, -0.06]). Here, however, the direct effect of decision timing on harm severity remained significant (b = -0.83, SE = 0.29, p = .005). The present results thus provide evidence for *Hypothesis 1b*, which states that procedural fairness mediates the effect of a delayed decision (versus a timely and a hasty decision) on harm severity.

Discussion

The findings of the present study provide evidence for our first hypothesis. That is, in line with *Hypothesis 1a*, a delayed incorrect decision is indeed perceived as a more severe transgression than when the same incorrect decision was generated in a hasty or timely manner. Moreover, in agreement with *Hypothesis 1b*, the results also confirmed our expectation that a delayed incorrect decision is perceived as more severe because it also violates procedural fairness concerns, in addition to outcome-related ones. In the Introduction we additionally argued that a hasty incorrect decision might also be seen as a more severe transgression than a timely incorrect

decision (but still less severe than a delayed incorrect decision). However, in the present study the differences between these two timing conditions failed to reach statistical significance. The next study was designed to examine how timing impacts victims' need for the restoration of such incidents, by investigating whether the need for an apology is higher after a delayed incorrect decision than after a timely or hasty incorrect decision (*Hypothesis 2*).

Study 2

Method

Participants and design

A sample of 59 US employees (38 men, 21 women, M_{age} = 33.81, *SD* = 10.29) recruited through Amazon Mechanical Turk completed an online questionnaire study in exchange for payment ($0.50). All participants worked at least 12 hours per week and had a direct supervisor at work. Participants worked on average 5.73 years (*SD* = 4.25) in their current organization. Four participants (6.8%) were excluded from the analyses because they failed on our check questions. We employed a 3-level (decision timing: hasty vs. timely vs. delayed) within-subjects design.

Procedure

Participants were presented with a questionnaire study. We used the same scenario as in Study 1 in which participants were asked to imagine as vividly as possible that their own supervisor made an incorrect decision which resulted in a negative decision outcome for them.

Manipulation of decision timing

Next, participants were asked to evaluate three situations (i.e., *hasty*, *timely*, and *delayed*) in which this incorrect decision could have been reached by their supervisor. These three decision timing conditions were framed in the same way as

in Study 1. An important difference, however, is that in the present study decision timing was manipulated within instead of between subjects. In order to avoid sequential effects, the three decision timing conditions were presented to participants in a random order.

Measures

Need for apology. For each of the three decision timing conditions, we probed participants' need for an apology with three items (based on Leunissen et al., 2013): "To what extent does your supervisor need to apologize?", "To what extent do you desire an apology from your supervisor?", and "To what extent is it necessary that your supervisor offers his or her apologies?" (1 = *not at all*, 7 = *very much*). For each decision timing condition these items were combined into a need for apology measure (Cronbach's α = .86, .89, and .84, for the hasty, timely, and delayed condition, respectively). The correlations among these three need for apology measures were rather high (all *r*s > .41, *p*s < .002).

Manipulation check. We checked the effectiveness of the decision timing manipulation with the following manipulation check: "To what extent was your supervisor's decision delayed?" (1 = *not at all*, 7 = *very much*). Participants rated this question for each of the three decision timing conditions.

Results

Manipulation check

We conducted a repeated measures analysis of variance (ANOVA), in which we included the manipulation check for each of the three decision timing conditions as within-subjects variables. The results of this analysis revealed a significant difference between the timing conditions on the manipulation check, $F(2, 108) = 83.69$, $p < .001$, $\eta^2_p = .61$. As expected, the *delayed* decision ($M = 5.84$, $SD = 1.66$) was perceived by participants as more delayed than the *timely* decision ($M = 2.67$, $SD = 1.63$), $F(1, 54) = 80.44$, $p < .001$, $\eta^2_p = .60$, and the *hasty* decision ($M = 2.07$, $SD =$

1.62), $F(1, 54) = 116.89$, $p < .001$, $\eta^2_p = .68$. Furthermore, the *timely* decision was also perceived as more delayed than the *hasty* decision, $F(1, 54) = 7.57$, $p = .008$, $\eta^2_p = .12$. These findings thus indicate that our decision timing manipulation was effective.

Need for apology

Next, a repeated measures ANOVA with the three need for apology measures as within-subjects variables was conducted. The results of this analysis revealed a significant difference between the decision timing conditions on the need for apology measure, $F(2, 108) = 8.84$, $p < .001$, $\eta^2_p = .14$. The contrasts were planned in accordance with *Hypothesis 2*. As predicted, after the *delayed* decision ($M = 5.37$, $SD = 1.29$) participants had a higher need for an apology than after the *timely* decision ($M = 4.64$, $SD = 1.47$), $F(1, 54) = 13.18$, $p = .001$, $\eta^2_p = .20$, and the *hasty* decision ($M = 4.99$, $SD = 1.47$), $F(1, 54) = 4.04$, $p = .049$, $\eta^2_p = .07$. In addition, after the *hasty* decision participants also indicated a higher need for an apology than after the *timely* decision, $F(1, 54) = 8.26$, $p = .006$, $\eta^2_p = .13$.

Discussion

In line with *Hypothesis 2*, our results showed that after the delayed incorrect decision the need for an apology was higher than after both the hasty and the timely decision. Moreover, in the present study this need was also significantly greater after the hasty than after the timely decision, thus indicating that a hasty decision might be seen as a more severe transgression than a timely decision. Study 3 aims to replicate the present findings using a lab experiment instead of a questionnaire study. Moreover, we also measured the expected effectiveness of an apology in Study 3 in order to investigate whether participants anticipated an apology to be *more* effective (*Hypothesis 3a*) or *less* effective (*Hypothesis 3b*) as a means to enhance trustworthiness after a delayed incorrect decision than after a timely or hasty incorrect decision.

Study 3

Method

Participants and design

A sample of 95 undergraduate college students (12 men, 83 women, M_{age} = 19.68, *SD* = 1.61) participated in this experiment for course credit. One of these participants was not included in the analyses due to a data storage error. Participants were randomly assigned to one condition of a 3-level (decision timing: hasty vs. timely vs. delayed) between-subjects design.

Procedure

Upon arrival at the laboratory, participants were each seated in front of a computer. They were informed that they would work together with other participants present in the lab on several tasks, and that one participant was assigned as their leader (in fact, unbeknownst to participants, the leader and his or her actions during the experiment were programmed). Their group was called 'Team Green'. Participants were then informed that the task would consist of two stages. In the first stage, participants would perform an individual task, in which they could earn money for the group. In the second stage, the simulated leader would make an investment decision with the group's earnings from the first stage.

After receiving this information, the first stage of the group task started. Participants learned that they should solve as many anagrams (e.g., 'ixat' = 'taxi') as possible in six minutes. Each anagram they solved earned money for their group, thereby increasing its chance of winning cinema tickets. On average, participants solved 19.44 anagrams (*SD* = 5.31). Upon completion of this task, participants were informed that the number of anagrams solved by each individual were pooled together to represent a group score, and that this group score was converted into a group-revenue.

In the second stage of the task, participants were told that the leader (whose behavior was simulated) would perform an investment task on behalf of the group, in which he or she would decide how the group's revenue from the first stage would be invested. Participants learned that to this end, the leader had to compare two possible investment options (i.e., 'research and development' and 'marketing'), and decide in which of these options the money would be invested. If the leader selected the correct alternative, the revenue that the group had earned would be multiplied, and the participants would be certain to earn the prize. However, if the leader selected the incorrect alternative, the group's revenue would be lost, and their chance of winning the prize would be squandered.

Although in this stage only the leader performed a task, participants could observe the leader while making this decision. As such, participants were able to observe on their screen which information the leader was consulting while performing the investment task, and could monitor at which time the leader made his or her decision. Through this procedure, we could administer our manipulation of decision timing. Importantly, in all three decision timing conditions, the leader consulted the information regarding the two investment options in a fixed, consistent order.

Manipulation of decision timing

Before the start of the second stage, we explained participants that the leader received six minutes to complete the investment task, and that it was crucial that the leader made his or her decision before the deadline. We provided such an explicit standard because in real-life leaders are often confronted with predefined deadlines. The first three minutes (i.e., the 'reading phase') were intended for the leader to carefully read the description of the two investments, whereas the final three minutes (i.e., the 'decision phase') were intended for the leader to decide between the two investment options. Our manipulation of decision timing varied how much time the

leader took to make his or her decision. Participants could follow this time course by a clock that was displayed on the middle of their screen.

In the *hasty* condition, the leader was preprogrammed to decide already after 45 seconds, long before the reading phase had concluded and the decision phase had commenced. In the timely condition and the delayed condition, after exactly 3:00 minutes a message was displayed which informed the leader that the reading phase was over and the decision phase would start. Subsequently, in the *timely* condition, the leader decided after 3:45 minutes. Yet, in the *delayed* condition the leader kept further postponing his or her decision. After 5:45 minutes a last warning message appeared on the screen which informed the leader that time was running out and that he or she immediately had to make a decision. However, in this condition the leader decided just after six minutes, the moment that the decision deadline passed.[1]

Finally, the outcomes of the task were revealed. In all three decision timing conditions, the leader selected the incorrect investment option, which yielded an unfavorable outcome as it caused the participants to lose all the money that they had earned in stage 1.

Measures

Need for apology. We measured participants' need for an apology with the same three items as in Study 2 (M = 4.52, SD = 1.67, Cronbach's α = .90).

Effectiveness of apology. To probe the extent to which participants expected an apology to be an effective strategy to enhance the trustworthiness of their leader, we used an abridged version (nine items) of the trustworthiness scale of Mayer and

[1] To provide an additional point of reference for the timeliness of the leader's decision, in all three decision timing conditions, we also displayed a notice when the leader of 'Team Red' − another group that simultaneously performed the study − had made his or her decision. This message was shown after 3:45 minutes (on average; the program randomly selected a value between 3:43 and 3:47). Although both groups performed the task individually and were not in competition for the prize, highlighting the timing of 'Team Red' provides a useful reference point for participants to judge the timeliness of their leader's decision.

Davis (1999) that was adapted to the context of the offer of an apology. Sample items are: "To what extent would an apology be effective to restore your faith in your leader's competence?" and "To what extent would an apology be effective to restore your faith that your leader is concerned about the welfare of his or her followers?" (1 = *not at all*, 7 = *very much*). The items were aggregated into a general measure of the perceived effectiveness of an apology (M = 4.27, SD = 1.10, Cronbach's α = .95).

Manipulation check. The effectiveness of the decision timing manipulation was measured with the same manipulation check as in Study 2 (M = 4.06, SD = 2.33).

Results

Manipulation check

We tested the effectiveness of our decision timing manipulation using a 3-level (decision timing: hasty vs. timely vs. delayed) ANOVA. The main effect of decision timing was significant, $F(2, 91) = 162.11$, $p < .001$, $\eta^2_p = .78$. A post hoc test (LSD) showed that participants in the *delayed* condition (M = 6.83, SD = 0.60) considered the decision as more delayed (ps < .001) than participants in the *timely* condition (M = 3.91, SD = 1.33) and those in the *hasty* condition (M = 1.79, SD = 1.19). Furthermore, participants in the *timely* condition considered the decision more delayed than those in the *hasty* condition (p < .001). The decision timing manipulation was thus effective.

Need for apology

A 3-level (decision timing) ANOVA on participants' need for an apology showed a significant main effect of decision timing, $F(2, 91) = 20.08$, $p < .001$, η^2_p = .31. In agreement with *Hypothesis 2*, a post hoc test (LSD) showed that participants in the *delayed* condition (M = 5.86, SD = 0.90) had a higher need for an apology (ps < .001) than participants in the *timely* condition (M = 3.67, SD = 1.62) and those in

the *hasty* condition (M = 4.16, SD = 1.55). In the present study, participants in the *hasty* and the *timely* condition did not differ significantly from each other (p = .160).

Effectiveness of apology

A 3-level (decision timing) ANOVA on participant's perceived effectiveness of an apology showed a significant main effect of decision timing, $F(2, 91) = 4.91$, $p = .009$, $\eta^2_p = .10$. As predicted by *Hypothesis 3b*, a post hoc test (LSD) showed that participants in the *delayed* condition (M = 3.78, SD = 1.41) expected an apology to be *less* (instead of more) effective (ps < .05) to enhance their trustworthiness of the leader compared to participants in the *timely* condition (M = 4.61, SD = 0.98) and those in the *hasty* condition (M = 4.37, SD = 0.74). Here too, the difference between the *hasty* and the *timely* condition was non-significant (p = .356).

Discussion

The present results provide further evidence for *Hypothesis 2*, by showing that participants have a higher need for an apology when they experience a negative outcome generated by their leader in a delayed way than when this same outcome was produced in a timely or hasty manner. At the same time, participants expected an apology to be *less* effective to enhance trustworthiness of their leader after a delayed decision than after a timely or hasty decision (*Hypothesis 3b*). These findings thus show a remarkable paradox: The need for an apology is highest when a decision is delayed, but at the same time an apology is expected to be the least effective strategy under such circumstances. This is also reflected in the negative correlation between the need for an apology and the effectiveness of an apology in the delayed decision timing condition (r = -.34, p = .07). Note that in the previous study participants in the hasty condition reported a higher need for an apology than participants in the timely condition. In the present study this difference was non-significant. However, the present study only informs us about the expected

effectiveness of an apology but not about the actual effectiveness of such an apology. Therefore, in the next study we explicitly tested the effectiveness of an apology (versus no apology).

Study 4

Method

Participants and design

A sample of 146 undergraduate university students (31 men, 109 women, M_{age} = 19.09, *SD* = 1.87) participated in this study for course credit. Gender and age of six participants were not recorded due to a programming error. We employed a 3 (decision timing: hasty vs. timely vs. delayed) × 2 (apology: no apology vs. apology) between-subjects design.

Procedure

We adopted the same procedure and the same decision timing manipulation as in Study 3, only now, the leader either did or did not provide an apology for his or her incorrect decision. On average, participants solved 18.86 anagrams (*SD* = 5.98) in the first stage of the group task.

Manipulation of apology

After the negative outcome of the investment task had been revealed, participants were informed that the leader had the opportunity to send them a message. In the *no apology* condition, participants were told that the leader had not taken up the possibility to send them a message. In the *apology* condition, the leader stated: "I want to apologize to everyone. I made a mistake. I promise you that this will never happen again." Note that the apology message was targeted at all group members and contained the acceptance of responsibility, admittance of wrongdoing, and a promise of forbearance, three essential components of a persuasive apology (Lewicki & Bunker, 1996; Scher & Darley, 1997).

Measures

Trustworthiness. To assess perceived trustworthiness of the leader, we employed the full ability, benevolence, and integrity subscales of the trustworthiness measure (17 items) developed by Mayer and Davis (1999). Sample items are: "I have faith in the qualities of the leader (ability)", "The leader places importance on the welfare of me and the team (benevolence)", and "The leader's actions and behaviors are not very consistent (integrity)" (1 = *strongly disagree*, 7 = *strongly agree*; negative item reverse-coded). Because of the high correlations between the three facet scales (all *r*s > .65, *p*s < .001), the 17 items were aggregated into a general scale measure of trustworthiness (M = 3.79, SD = 0.85, Cronbach's α = .94).

Trust. To probe participants' trusting intentions towards the leader we employed the six item trust scale of Desmet, De Cremer, and van Dijk (2011). Sample items are: "I trust the leader" and "I think that the leader would deceive me if he or she would benefit from it" (1 = *strongly disagree*, 7 = *strongly agree*; negative items reverse-coded). The six trust items were aggregated into a scale measure of participants' trusting intentions (M = 4.05, SD = 0.98, Cronbach's α = .86).

Manipulation check. The effectiveness of the decision timing manipulation was checked with the same manipulation check as in Study 2 (M = 4.08, SD = 2.15).

Results

Manipulation check

We tested the effectiveness of our decision timing manipulation using a 3 (decision timing: hasty vs. timely vs. delayed) × 2 (apology: no apology vs. apology) ANOVA. The results showed a significant main effect of decision timing, $F(2, 140) = 98.84$, $p < .001$, $\eta^2_p = .59$. As expected, a post hoc test (LSD) showed that participants in the *delayed* condition (M = 6.35, SD = 1.26) considered the decision as more delayed (*p*s < .001) than participants in the *timely* condition (M = 3.45, SD =

1.46) and those in the *hasty* condition (M = 2.49, SD = 1.47). Furthermore, participants in the *timely* condition considered the decision more delayed than those in the *hasty* condition (p = .001). The main effect of apology and the interaction effect were non-significant (both Fs < 0.67, ps > .414). Again, the results indicate that our decision timing manipulation was effective.

Trustworthiness

A 3 (decision timing) × 2 (apology) ANOVA on trustworthiness[2] showed significant main effects of decision timing, $F(2, 140) = 5.96$, $p = .003$, $\eta^2_p = .08$, and apology, $F(1, 140) = 16.23$, $p < .001$, $\eta^2_p = .10$. The results showed that these effects were qualified by a significant interaction between decision timing and apology, $F(2, 140) = 4.17$, $p = .017$, $\eta^2_p = .06$. We conducted simple effects tests to further analyze this interaction. Means and standard deviations for the corresponding conditions are presented in Table 1.

In line with the predictions made in *Hypothesis 3b*, an apology was *less* effective in enhancing trustworthiness in the *delayed* condition than in the *timely* condition (p < .001) and the *hasty* condition (p = .006). Moreover, an apology was slightly more effective in the *timely* condition than in the *hasty* condition (p = .091). When participants did not receive an apology, there was no significant difference between the *hasty*, *timely*, and *delayed* conditions (ps > .536). Whereas these results indicate that an apology is less effective in enhancing trustworthiness after a delayed decision than after a timely and a hasty one, it does not inform us about how effective an apology exactly is in each of the three decision timing conditions. We therefore performed additional simple effects tests which revealed that an apology is more effective to enhance trustworthiness than no apology after both a *hasty*

[2] ANOVAs and subsequent simple effects tests for the trustworthiness facet scales of ability, benevolence, and integrity led to similar conclusions as the ones reported here for the total scale.

decision (p = .018) and a *timely* decision (p < .001). After a *delayed* decision, however, an apology is not more effective than no apology to increase trustworthiness (p = .803).

Trust

A 3 (decision timing) × 2 (apology) ANOVA on trust showed significant main effects of decision timing, $F(2, 140) = 4.79$, $p = .01$, $\eta^2_p = .06$, and apology, $F(1, 140) = 15.63$, $p < .001$, $\eta^2_p = .10$. The interaction effect of decision timing and apology, however, revealed a tendency towards statistical significance, $F(2, 140) = 2.86$, $p = .060$, $\eta^2_p = .04$. We further analyzed this almost significant interaction with simple effects tests in order to explore whether we could replicate the results reported for trustworthiness for actual trust. Because the interaction failed to reach statistical significance at the .05 level, the results presented below should be interpreted with caution. Means and standard deviations for the corresponding conditions are presented in Table 1.

In agreement with *Hypothesis 3b*, an apology was *less* effective to repair trust in the *delayed* condition than in the *timely* condition (p < .001) and the *hasty* condition (p = .017); while there was no significant difference between the *hasty* condition and the *timely* condition (p = .153). Moreover, when participants did not receive an apology, the three timing conditions did not differ significantly from each other (ps > .493). Additional simple effects tests showed that an apology is more effective to repair trust than no apology in both the *hasty* condition (p = .023) and the *timely* condition (p < .001). After a *delayed* decision, an apology is not more effective than no apology in restoring trust (p = .566). Hence, the analyses revealed similar results for trustworthiness and trust, which can be ascribed to the high correlation between these two concepts (r = .79, p < .001).

Table 1. Means and standard deviations for trustworthiness and trust in Study 4 (*N* = 146).

Dependent variable	Decision timing condition	Apology condition					
		No apology		Apology		Total	
		M	*SD*	*M*	*SD*	*M*	*SD*
Trustworthiness	Hasty	3.60	0.66	4.12	0.56	3.87	0.66
	Timely	3.53	0.82	4.48	0.71	4.02	0.90
	Delayed	3.46	0.94	3.51	0.85	3.49	0.89
	Total	3.53	0.81	4.05	0.81	3.79	0.85
Trust	Hasty	3.83	0.63	4.42	0.81	4.14	0.78
	Timely	3.76	1.12	4.79	0.97	4.28	1.16
	Delayed	3.65	0.95	3.80	0.87	3.72	0.90
	Total	3.74	0.91	4.35	0.96	4.05	0.98

Note. Higher mean scores indicate greater trust(worthiness).

Discussion

In support of *Hypothesis 3b*, the current study demonstrates that in the aftermath of a leader failure, the provision of an apology is *less* effective in restoring trustworthiness and trust after a delayed incorrect decision compared to a timely and a hasty incorrect decision. Moreover, the difference between the hasty and timely condition was marginally significant for trustworthiness, but non-significant for trust. It should, however, be noted that the decision timing by apology interaction revealed only a tendency towards statistical significance for the trust scale, and the results of the simple effects tests should therefore be interpreted with caution. In order to replicate the present results we conducted an additional study in which we

used an employee sample to investigate the effectiveness of an apology in restoring trust.

Study 5

Method

Participants and design

A sample of 151 US employees (87 men, 64 women, M_{age} = 34.92, *SD* = 10.48) was recruited through Amazon Mechanical Turk. They completed an online scenario study in exchange for payment ($0.50). All participants worked at least 12 hours per week and had a direct supervisor at work. Participants worked on average 5.97 years (*SD* = 5.13) in their current organization. Twelve participants (7.9%) were excluded from further analyses because they failed on our check questions. As in the previous study, we employed a 3 (decision timing: hasty vs. timely vs. delayed) × 2 (apology: no apology vs. apology) between-subjects design.

Procedure

As in Study 1, participants were presented with a short scenario in which they were asked to imagine as vividly as possible that their supervisor made an incorrect decision which resulted in a negative decision outcome for them.

Manipulation of decision timing

Similar to the first study, in the *hasty* condition participants read that the incorrect decision by their supervisor was made in a hasty manner, in the *timely* condition the incorrect decision was generated in a timely fashion, and in the *delayed* condition the incorrect decision was described as being delayed (for the precise formulations, see the Method section of Study 1).

Manipulation of apology

In the *no apology* condition, it was stated that no further communication regarding this incidence took place. In the *apology* condition, participants were told

that their supervisor apologized for what happened by stating: "I want to apologize to you. I made a mistake. I promise you that this will never happen again." As in the previous study, the apology message contained the three essential components of a persuasive apology.

Measures

Trust. We measured participants trust in their leader with the same six items as in Study 4 (M = 4.02, SD = 1.55, Cronbach's α = .95).

Manipulation check. The effectiveness of the decision timing manipulation was probed with the same manipulation check as in Study 2 (M = 3.55, SD = 2.35).

Results

Manipulation check

The effectiveness of our decision timing manipulation was tested using a 3 (decision timing: hasty vs. timely vs. delayed) × 2 (apology: no apology vs. apology) ANOVA. The results showed a significant main effect of decision timing, $F(2, 133) = 128.23$, $p < .001$, $\eta^2_p = .66$. As expected, a post hoc test (LSD) showed that participants in the *delayed* condition (M = 6.27, SD = 1.14) considered the decision as more delayed (ps < .001) than participants in the *timely* condition (M = 2.47, SD = 1.63) and those in the *hasty* condition (M = 2.04, SD = 1.37). Although the difference is in the expected direction, the *timely* and the *hasty* condition did not differ significantly from each other (p = .145). The main effect of apology and the interaction effect were non-significant (both Fs < 2.14, ps > .146).

Trust

A 3 (decision timing) × 2 (apology) ANOVA on trust showed significant main effects of decision timing, $F(2, 133) = 11.39$, $p < .001$, $\eta^2_p = .15$, and apology, $F(1, 133) = 19.72$, $p < .001$, $\eta^2_p = .13$. The results showed that these effects were qualified by a significant interaction between decision timing and apology, $F(2, 133) = 3.57$, $p = .031$, $\eta^2_p = .05$. We conducted simple effects tests to further analyze this

interaction. Means and standard deviations for the corresponding conditions are presented in Table 2.

In agreement with *Hypothesis 3b*, an apology was *less* effective to repair trust in the *delayed* condition than in the *timely* condition ($p < .001$) and the *hasty* condition ($p = .012$). Moreover, in the *hasty* condition an apology was less effective than in the *timely* condition ($p = .007$). As in the previous study, when participants did not receive an apology, the three decision timing conditions did not differ significantly from each other ($ps > .129$). Additional simple effects tests showed that an apology is more effective to repair trust than no apology in both the *hasty* condition ($p = .016$) and the *timely* condition ($p < .001$). After a *delayed* decision, an apology is not more effective than no apology for restoring trust ($p = .463$).

Table 2. Means and standard deviations for trust in Study 5 ($N = 139$).

Decision timing condition	Apology condition					
	No apology		Apology		Total	
	M	*SD*	*M*	*SD*	*M*	*SD*
Hasty	3.57	1.36	4.52	1.22	4.04	1.37
Timely	3.80	1.82	5.61	1.08	4.69	1.75
Delayed	3.19	1.42	3.49	1.01	3.33	1.24
Total	3.52	1.54	4.56	1.39	4.02	1.55

Note. Higher mean scores indicate greater trust.

Discussion

The present study replicates the findings of Study 4. That is, in agreement with *Hypothesis 3b,* the results showed that an apology is *less* effective in restoring

trust after a delayed incorrect decision compared to a timely and a hasty incorrect decision. Here, the difference between the hasty and the timely condition was significant, once again indicating that a hasty decision might be seen as a more severe transgression than a timely decision.

General discussion

Although trust is a vital ingredient of effective leader-follower relationships, it is not uncommon that leaders violate their followers' trust by making decisions that result in a negative outcome. When the failure to reach a desired outcome is ascribed to the leader, followers' trust in the leader will subsequently decline. One way in which leaders can repair broken trust is by apologizing for their mistakes. Importantly, however, restoration of trust may depend not only on the negative outcomes that result from such decisions, but also on the timing of those decisions. In spite of the ubiquity of timing errors in daily life, such transgressions have received only scant attention in research. To the best of our knowledge, no research has focused on the role of timeliness of decisions in trust repair yet. We therefore investigated decision timing as an important feature of decision style that may influence the effectiveness of apologies as a trust repair strategy in leader-follower relationships.

Main conclusions

In accordance with *Hypothesis 1a*, the results of Study 1 revealed that when a negative outcome is generated by a leader in a delayed manner, this is perceived by followers as a more severe transgression than when the same negative outcome is generated in a timely or hasty fashion. Moreover, our findings revealed that procedural fairness mediates the effect of a delayed decision on harm severity (*Hypothesis 1b*). Hence, our findings indicate that a delayed incorrect decision can be seen as a more severe transgression as it violates both outcome-related and

procedural fairness concerns. The present findings thus corroborate recent research by Valkeapää and Seppälä (2014), who also reported that especially slow decision-making styles violate procedural fairness concerns.

Moreover, as predicted in *Hypothesis 2*, the results of Studies 2 and 3 showed that the need for an apology is higher after a delayed incorrect decision than after a timely and a hasty incorrect decision. This result supports findings done in fairness research, which have convincingly showed that negative decision outcomes prompt people to be more sensitive for unfair procedures (Brockner & Wiesenfeld, 1996). A combination of low procedural fairness and low outcome favorability – like in the case of a delayed incorrect decision – can thus be expected to elicit a high need for actions that reestablish the social relationship, such as the offer of an apology (see De Cremer & Tyler, 2005; Tyler & Lind, 1992). The results of our studies also corroborate prior forgiveness research, which has shown that the need for actions that promote reconciliation is strengthened by harm severity (Pronk et al., 2010).

Finally, in accordance with *Hypothesis 3b* (and opposite to the predictions made by the competing *Hypothesis 3a*) Study 3 also revealed that followers expected an apology to be *less* (instead of more) effective to increase trustworthiness when the negative decision outcome was delayed relative to timely or hasty. In Study 4, we replicated this effect for actual apologies on trustworthiness and trust. Although in this instance the effect on trust was only marginally significant, and therefore should be interpreted with caution, this effect was replicated with statistical significance in Study 5. These results thus corroborate forgiveness research, which has demonstrated that after severe transgressions, when the need for trust restoration is at a high level, apologies are ineffective to enhance reconciliation (e.g., see Ohbuchi et al., 1989; Schlenker, 1985; Schoenbach, 1990). Moreover, the finding that in the aftermath of an incorrect decision (which results in low distributive

fairness) the provision of an apology (which aims to enhance interactional fairness) was ineffective to repair trust when procedural fairness concerns were also violated (like in the case of a delay) is also in line with previous research that focused on the different fairness dimensions in the context of service recovery efforts. Specifically, this prior research has demonstrated that the effectiveness of a recovery strategy that enhances one specific fairness dimension is lessened when the other two fairness dimensions are not well secured (see Blodgett et al., 1997; Tax et al., 1998).

Taken together, the present findings thus present us with an interesting paradox: Even though the need for an apology is highest when a decision is delayed (compared to timely or hasty), an apology proved to be the least effective to enhance trustworthiness and repair actual trust in the delayed decision timing condition. In the remainder of the discussion, we first elaborate on the differences between hasty and timely decisions. Secondly, we focus on the theoretical and practical implications that can be derived from the current research. Next, we address the question whether trust can be repaired after a delayed decision. Finally, we describe some strengths and limitations of the present studies, and formulate some recommendations for future research.

Differences between hasty and timely decisions

Note that the present research mainly focused on delayed decisions, which were contrasted with hasty and timely decisions. However, as argued in the introduction, it is possible that hasty decisions might also differ from timely ones. Based on prior research of Valkeapää and Seppälä (2014), it can be predicted that in the case of a hasty decision procedural fairness concerns will also be violated (but to a lesser extent than after a delay). As a result, a hasty incorrect decision might be seen as a more severe transgression, which engenders a higher need for an apology, than a timely incorrect decision. Our results partially confirmed these predictions.

That is, although no significant differences between the hasty and the timely condition emerged in terms of perceived procedural fairness and harm severity (Study 1), need for and expected effectiveness of an apology (Study 3), and enhanced trust and trustworthiness after receiving an apology (Study 4); we obtained significant results for need for an apology in Study 2 and for trust in Study 5. This inconsistency between Studies 2 and 3 can possibly be ascribed to the fact that the second study employed a within-subjects design to manipulate decision timing. Such a design results in substantially more sensitivity to a manipulation than a between-subjects design that contains approximate the same number of observations (Greenwald, 1976).

To conclude, based on our findings it thus seems plausible that hasty and timely decisions are also experienced differently. It might be interesting for future research to further investigate the difference between hasty and timely decisions, and, more specifically, when hasty and timely decisions exactly differ and when they do not.

Theoretical and practical implications

The first important contribution of the present research is that it shows that a lack of timeliness is a crucial transgression dimension that has powerful effects on trust and trustworthiness. Prior research has focused heavily on trust violations as being either competence- or integrity-based (for an overview on this matter, see Kim, Dirks, & Cooper, 2009). However, our results show that while an apology (compared to no apology) was effective in enhancing trustworthiness and trust repair following a leader's incorrect hasty and timely responses, this was no longer the case after a delay. Our findings thus suggest that, besides competence and integrity violations, delays can be considered a distinct type of trust violation. Based on our findings, it can be concluded that timeliness represents an important extension for literature on trust repair.

This research also highlights an additional issue that deserves particular attention of leaders who in everyday life must make numerous decisions that can affect their followers. Specifically, in our studies we examined timing errors in a context in which followers depended on the actions of their leader, and the leader's delay constituted a clear threat to their interests. Such situations frequently occur in organizations, where leaders are regularly faced with deadlines. Prior work on timing in organizations has suggested that subordinates develop strong temporal expectations, which often get violated in the form of delays (Blount & Janick, 2001; Tukel & Rom, 1998). Moreover, ample research has shown that delayed decisions can have severe consequences in terms of negative leadership perceptions, lowered team effectiveness, and decreased organizational performance (e.g., Cha & Edmonston, 2006; Jacobs, 2005; Hogan & Kaiser, 2005; Mohammed et al., 2009).

Our findings supplement the adverse consequences of delays by showing its negative effects on trustworthiness and trust. Together these findings show that even when leaders are overwhelmed by the large number of decisions they have to address, it is better for them to give preference to fast over delayed actions. This view is congruent with literature on action bias (e.g., Bar-Eli, Azar, Ritov, Keidar-Levin, & Shein, 2007), which states that people tend to evaluate others more positively if they take action rather than do nothing, regardless of whether this action proves optimal relative to the outcome. From the above, we can thus conclude that leaders should be informed that missing a deadline can have severe ramifications, which can be hard to reconcile by usual means such as the offer of an apology.

Can trust be repaired after a delayed incorrect decision?

The question that arises is whether trust can be repaired in the aftermath of a delayed incorrect decision. While in the present research apologies were ineffective for restoring trust after delays (despite containing the three essential components, see Scher & Darley, 1997), it is possible that more elaborated, complex, or intense

apologies might be more effective. Schlenker and Darby (1981), for example, suggested that people tend to use more complex apologies involving a larger number of components as the harm done gets more serious. For instance, a more explicit promise of future trustworthy behavior may be necessary in order to restore trust after a delayed incorrect decision. Moreover, after a delayed incorrect decision an apology might be seen as only a first and necessary step that subsequently needs to be backed up with more reliable behavior in order to successfully repair trust. The process of trust repair in response to a delayed decision may thus be a process of longer duration, in which trust can only be rebuilt gradually over time.

In addition, prior trust repair research has revealed that, besides apologies, there are many other strategies that can repair broken trust. For instance, because in the present research the leader's decision resulted in a negative decision outcome, strategies that address violated outcome-related concerns might be necessary to repair broken trust. The offer of a financial compensation is an example of such a strategy (see Haesevoets, Reinders Folmer, De Cremer, & Van Hiel, 2013; Desmet et al., 2011). It is thus possible that the 'cheap talk' of an apology should be substantiated with at least some sort of tangibility in order to initiate the recovery process.

Strengths and limitations

Evidence for our hypotheses was obtained using five empirical studies in which we manipulated decision timing (in Studies 1 through 5) and apology (in Studies 4 and 5). An advantage of studying human behavior using experimental manipulations is that it allows us to investigate the processes of decision timing and trust repair in a controlled environment. In the experimental studies, we thus gave priority to the goals of precision, controllability, and consistency. However, these priorities were emphasized at the expense of generalizability. In order to enlarge the generalizability of our findings, three of our studies (i.e., Studies 1, 2, and 5) were

conducted among followers who answered our study questions for their own leader. The inclusion of followers in organizational settings provides evidence for the robustness of our findings.

Secondly, despite the conceptual differences between trustworthiness and trust (see Colquitt et al., 2007; Mayer et al., 1995), our results revealed that an apology was effective to enhance both trustworthiness and actual trust after a hasty and a timely decision, but ineffective after a delayed decision. The observation that we could replicate this effect across both trust concepts further underlines the robustness of our findings. However, this result is not too surprising because despite their differences these two concepts are also closely related to each other (i.e., "one trusts someone because she is trustworthy, and one's trustworthiness inspires trust"; see Flores & Solomon, 1998, p. 209). This is also reflected by the high correlation (r = .79) between trustworthiness and trust in our fourth study.

A major limitation of the present research, however, is that in our studies the concepts of trust and trustworthiness were both measured using a snapshot approach. In real-life trust is a more dynamic construct that fluctuates over time (Dirks, Lewicki, & Zaheer, 2009). The investigation of trust as a dynamic construct thus requires multiple measurements over time. A vital recommendation for further research is therefore to take the dynamic nature of trust into consideration when investigating the trust repair process.

Moreover, a specific restriction of our Mechanical Turk studies (i.e., Studies 1, 2, and 5) is that the scenarios that we employed were all framed in rather general terms. That is, in these studies no specific information regarding the decision-making process was provided because this would make it increasingly likely that certain parts of the scenario would diverge from what participants actually experience in their daily life. Nonetheless, we should acknowledge that the use of context free scenarios may have led to a decreased intensity of the participants'

experiences. This methodological choice may also threaten the ecological validity of our findings, as in real-life situations many different factors − such as for instance the intensity of the trust violation and the history of the relationship between the leader and his or her followers − may also influence the trust repair process. We believe that it would be interesting for further studies to discover important contextual factors that might influence the trust restoration process in actual business settings and encourage future research to take these different elements into account.

Directions for future research

The present research provides only an overall test of the effects of decision timing on trust repair in the aftermath of leader failure. As argued above, future studies should aim to understand which contextual factors may impact the effect of timing on trust, and the processes that may explain this effect.

First of all, future studies should examine the impact of timing errors in the context of correct decisions (instead of incorrect ones). In order to be able to investigate the trust repair process, we solely focused on situations in which the failure of the leader resulted in an equivalent negative outcome for followers. Based on the present results, it is unclear which consequences may arise when a leader makes a decision that results in favorable outcomes in a delayed manner. It is possible that the adverse effects of delays, which we noted in the present studies, will be less pronounced when the output of the decision is positive (cf. Brockner & Wiesenfeld, 1996). Additional research is needed to examine this prediction.

Moreover, to investigate the effectiveness of apologies as a means to repair trust in the aftermath of leader failure, in our studies decision timing was manipulated in such a way that it was clear to participants that the leader him- or herself was responsible for the negative decision outcome. If the cause of a delay can be attributed to factors other than the leader, it can be expected that the leader will not be seen as the prime responsible, which might alter the effectiveness of the

provision of an apology to establish trust repair. The investigation of the role of such attributions is an important avenue for future research.

Additional research should also examine the social context in which the timing violation occurred. In this regard, future studies can, for instance, investigate the role of leader-member exchanges (LMX) in the trust repair process after different timing transgressions (see Gómez & Rosen, 2001; Liden & Graen, 1980), as the quality of these leader-member exchange relationships might influence the effectiveness of apologies. It is possible that an apology will be more effective to enhance trust after a delayed incorrect decision when the quality of the relationship between the leader and his or her follower is rated highly. This prediction should also be validated in future research.

Finally, the present research has primarily understood the effect of timing in terms of its violation of fairness concerns. Although our results revealed that fairness can (partially) explain the effects of delayed decision making, it must be acknowledged that in the present research we only took the mediating role of procedural fairness into account. Yet, it is possible that timing violations do not only violate norms of fair treatment, but also norms of politeness and respect (i.e., interactional fairness). Therefore, it is important that future timing research also includes a measurement of interactional fairness in addition to procedural fairness.

Conclusion

The present research was the first to systematically study how the timing of an incorrect decision influences the need for, and the effectiveness of an apology as a trust repair strategy. The results of our studies revealed that the need for an apology was highest when an incorrect decision was preceded by delay, whereas apologies in fact were ineffective for repairing trust in this context. Leaders would thus be wise to bear in mind that even when the outcome of a decision is uncertain, it

is better to decide (too) soon rather than (too) late, as negative outcomes are particularly difficult to restore in the context of delays.

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Chapter 9

Understanding the Effects of Financial Compensation on the Repair of Interpersonal Trust: Evidence from fMRI in Favor of Forgiveness and Social Reward

Abstract

Trust violations are ubiquitous in organizations, and one possible response to repair interpersonal trust involves the provision of a financial compensation. Unfortunately, very little is known about the processes that underlie the effect of such tangible responses to repair trust in highly interdependent exchange situations. We employed advanced techniques in cognitive neuroscience (fMRI) to examine those processes. Participants placed in the scanner played the role of recipient in a series of dictator games with allocators who (unknown to them) were preprogrammed. Trust was violated through an unequal division of resources, while afterwards it was repaired by a financial compensation that restored equality. In line with our proposed social equilibrium model, our neuroimaging data indicate that receiving a financial compensation after an unequal division activates forgiveness and social reward related brain areas, but only forgiveness activation mediates the link between compensation and trust repair. Our findings further reveal that brain responses evoked by financial compensations are relatively stable over time. We discuss the theoretical and managerial implications of using financial compensations to repair interpersonal trust in organizational exchange settings.

This chapter is based on Haesevoets, T., De Cremer, D., Van Hiel, A., & Van Overwalle, F. Understanding the effects of financial compensation on the repair of interpersonal trust: Evidence from fMRI in favor of forgiveness and social reward. *Manuscript under revision.*

Introduction

Interpersonal trust matters to the effective functioning of organizations (Colquitt, Scott, & LePine, 2007; Dirks & Ferrin, 2001; Kramer, 1999). Research has shown that in interdependent work relationships trust predicts job satisfaction, cooperation, organizational commitment, organizational citizen behavior, information sharing, turnover, and job performance (Bromiley & Cummings, 1996; Butler, 1999; Colquitt et al., 2007; Dirks, 2000; Dirks & Ferrin, 2002; Dirks & Skarlicki, 2008; Flaherty & Pappas, 2000). Simpson (2007, p. 587) even noted that interpersonal trust acts "as a social lubricant that promotes cooperation between group members, sustains social order, and permits beneficial long-term exchanges that otherwise might never occur." For this reason, it is no surprise that for organizational behavior researchers the development of interpersonal trust in exchange situations is a key component for effective, productive, and sustainable organizations to emerge.

Unfortunately, an important aspect of interpersonal trust is that it can easily be broken (see Kim, Ferrin, Cooper, & Dirks, 2004; Schweitzer, Hershey, & Bradlow, 2006). In work settings it has been documented that the majority of employees experience trust violations on a quite regular basis (Conway & Briner, 2002; Robinson & Rousseau, 1994). Some researchers even suggest that it is the norm for employees to experience trust violations by their leader (Dirks, Kim, Ferrin, & Cooper, 2011); situations that may pave the way for the emergence of negative emotions and destructive behaviors such as revenge-seeking actions, verbal aggression, and decreased cooperation (Bies & Tripp, 1996; Bottom, Gibson, Daniels, & Murnighan, 2002; Haden & Hojjat, 2006). Trust violations, for instance, occur when leaders fail to provide their employees a promised raise or when bonuses or other valuable tangible resources are distributed in an unfair manner between

employees. These examples illustrate that trust breaches often result in tangible losses for employees. As a result, employees might expect a "substantive" response (i.e., involving a tangible element) before they are willing to trust their leader or organization again (Dirks et al., 2011; Sitkin & Roth, 1993). Financial cues (e.g., compensations, profit, and pay increases) are prevalent within organizations, and constitute the type of substantive, tangible responses decision-makers can employ to (re)establish trust (see Dirks et al., 2011).

Because the repair of broken trust is vital for organizations, more recent organizational behavior research has switched its focus from the implications of damaged trust to how it can be repaired (Dirks, Lewicki, & Zaheer, 2009; Ferrin, Kim, Cooper, & Dirks, 2007). However, most prior trust repair research has focused on the effectiveness of non-substantive (verbal) responses, whereas research on more tangible responses is rather scarce. Fortunately, a few studies have started to examine to the impact of substantive responses to repair trust (e.g., Bottom et al., 2002; Desmet, De Cremer, & van Dijk, 2010, 2011), with the most notable response being the offer of a financial compensation. Overall, prior compensation studies have demonstrated that financial compensations can be effective to repair the trustworthiness of the transgressor, but even more interestingly, compensations that reveal equal final outcomes for both parties were found to be particularly effective to enhance trust (see Haesevoets, Reinders Folmer, De Cremer, & Van Hiel, 2013; Haesevoets, Reinders Folmer, & Van Hiel, 2015; Haesevoets, Van Hiel, Reinders Folmer, & De Cremer, 2014). Although this "equality" effect seems to be very robust in the context of trust repair, studies have not revealed much evidence yet why it is that victims of a trust breach are willing to respond positively in terms of trust to a substantive response like a(n) (equal) financial compensation.

In the present study we adopt a neurocognitive approach to better understand what a financial compensation as a means to repair a transgressor's trustworthiness

actually signifies to those whose trust is violated (cf. Dulebohn et al., 2016; for an application to the topic of justice). In doing so, we are the first to investigate the compensation-based trust repair process by means of looking into the brain.

Why do we need a brain approach to investigate the repair of interpersonal trust? Recently, neuroscience methods have been used extensively to measure important psychological processes that might be difficult to measure using only self-reports or other behavioral methods (e.g., see Amodio, Harmon-Jones, & Devine, 2003; Amodio et al., 2004). Interesting in the context of the present study is the observation that the human brain has evolved mechanisms that are capable of evaluating the trustworthiness of others even without conscious deliberation (see Burnham, McCabe, & Smith, 2000; Todorov, 2011; Todorov, Pakrashi, & Oosterhof, 2009; Winston, Strange, O'Doherty, & Dolan, 2002). Indeed, theory and empirical evidence suggests that "humans are hardwired to quickly evaluate the trustworthiness of entities in our proximity" (Holtz, 2013, p. 1896). Based on these findings it can be concluded that trust-related evaluations are, at least partially, formed at a subconscious level. Although trust is increasingly seen as a process that also takes place in the brain, it is surprising that brain reactions have not yet been studied in the context of trust repair as most prior neuroimaging studies solely focused on trustworthiness judgements (e.g., see Baumgartner, Heinrichs, Vonlanthen, Fischbacher, & Fehr, 2008; Delgado, Frank, & Phelps, 2005; King-Casas et al., 2005; Krueger et al., 2007). Stated otherwise, studies so far focused on the neural substrates that are associated with the presence (or absence) of trust, whereas the neural mechanisms associated with the transition from a state of violated trust to a state of regained trust have not yet been investigated.

To address this gap in the literature, in the present paper we examine the neurobiological foundation of financial compensations in the context of tangible

trust repair efforts in interdependent exchange situations. In doing this, we directly respond to calls that "there is a need for more research on neurological responses to other signals of trustworthiness" (Holtz, 2013, p. 1915), than only using human facial characteristics. Moreover, we also respond to the claim that to date the method of functional magnetic resonance imaging (fMRI) has not yet been applied to understand the role that organizational signals of trustworthiness can play in the trust violation and repair phases (Holtz, 2013).

The employment of an fMRI approach can help promoting the current trust repair literature in terms of both theoretical and practical implications. In terms of theory development, fMRI allows the analysis of neural activity to determine which neural subsystems are activated in response to compensation-based trust repair attempts. In this regard, the employment of an fMRI approach helps us to investigate in greater detail which processes do (and do not) play a key role in the effectiveness of substantive trust repair attempts. This approach can hence be used to further improve existing theoretical notions of the processes underlying trust repair. Moreover, this method can also help to identify practical implications for organizations as it can, for instance, clarify how people react to multiple trust violations and subsequent repair attempts, which are clear characteristics of work relationships (Conway & Briner, 2002).

Theoretical foundations and neural expectations

The repair of broken trust is a fundamental but surprisingly understudied research topic that warrants more empirical study and theoretical development (Schoorman, Mayer, & Davis, 2007). In this regard, Dirks et al. (2009) noted that "a unified conceptual foundation for the notion of relationship repair has yet to emerge" (p.73). Motivated by this lacuna in the literature, these authors moved on to present three perspectives which embody three different ways of looking at the general process of trust repair. Especially interesting in the context of our research questions

is these authors' social equilibrium perspective. This perspective is particularly suited to investigate the repair of interpersonal trust as it zooms in on the specific interpersonal and social aspects of relationships damaged by a transgression. That is, the social equilibrium perspective can help us to understand what exactly has been damaged by a trust breach, and as such needs to be repaired and how this repair process operates.

With respect to the "what" question, the social equilibrium perspective proposes that trust violations call into question the norms that apply to the relationship as well as the relative standing of the involved parties, as such creating a state of "social disequilibrium" (Dirks et al., 2009). This perspective thus assumes that a trust violation leads to a state of disequilibrium at two levels: At the level of the interpersonal relationship itself *and* at the level of the broader social context. Hence, in order to repair trust it is crucial to reestablish the balance by both reaffirming the norms that govern the relationship and by restoring the social order. This can be achieved through various responses, of which the provision of a financial compensation is an important example (see Bottom et al., 2002; Desmet et al., 2010, 2011). Because a tangible trust violation results in a financial loss for the victim, it can be expected that a substantive response undoing the harm will be especially effective to repair trust. Why?

Following the social equilibrium perspective, two processes are expected to play a vital role in our proposed compensation-based trust repair process. First, offering a financial compensation reestablishes the equilibrium in the relationship at hand by eliciting feelings of *forgiveness*. Second, a financial compensation also resolves the disequilibrium in the broader social context and should thus be experienced as *socially rewarding*. Below, we will elaborate on the importance and workings of both processes.

In light of the first process, forgiveness, it is important to realize that a trust violation in interpersonal settings leads to a state of disequilibrium in the relationship between the victim and the transgressor. In this regard, trust breaches often violate the norms that govern highly interdependent relationships. By reaffirming the equality norm (Messick, 1993), a financial compensation returns the relationship to a more positive state. To be more precise, an equal compensation reaffirms the importance that the transgressor ascribes to the relationship. If a transgressor displays the willingness to restore the inflicted harm, this signals that the transgressor regrets his or her actions and is motivated to repair the relationship with the other (Dirks et al., 2011). In other words, the provision of a financial compensation can be interpreted by the victim as a sign of repentance, which is an important determinant to elicit forgiveness (e.g., Darby & Schlenker, 1982; McCullough, Fincham, & Tsang, 2003; Ohbuchi, Kameda, & Agarie, 1989). Prior research has indeed shown that forgiveness is an important prerequisite to the restoration of harmony in relationships (Finkel, Rusbult, Kumashiro, & Hannon, 2002), and therefore is considered to be a key initial step for trust repair to happen. Although the notion of forgiveness has not received much attention yet in the organizational behavior literature, scholars have noted that forgiveness is nevertheless an important concern in organizational life (Aquino, Grover, Goldman, & Folger, 2003; Cameron & Caza, 2002; Fehr & Gelfand, 2012; Kurzynski, 1998). Forgiveness can be defined as the set of motivational changes whereby the victim will be motivated less to retaliate against the transgressor and motivated more to reconcile and show goodwill toward the transgressor (McCullough, Worthington, & Rachal, 1997). From this perspective, forgiveness reflects a prosocial change by which victims release their negative emotions towards the transgressor and replace them with neutral or even positive ones.

Based on this first process of forgiveness, which predictions regarding the neural correlates of forgiveness can be made? Recent research by Will, Crone, and Güroğlu (2014) has revealed that forgiveness is associated with perspective-taking, which results in increased activation in the temporoparietal junction (TPJ) and the medial prefrontal cortex (mPFC) as parts of the mentalizing network (see Van Overwalle, 2009). Will and colleagues (2014) also argued that it is important that victims of a transgression suppress their urge to retaliate, which results in higher activation in the posterior medial frontal cortex (pmFC) and the lateral prefrontal cortex of the conflict monitoring network (see Botvinick, Cohen, & Carter, 2004). The study of Will et al. (2014) further showed that the anterior insula (AI) – which is part of a larger salience monitoring system that integrates interoceptive information and important environmental inputs with conflict processing (see Menon & Uddin, 2010; Taylor, Seminowicz, & Davis, 2009) – also became more active when forgiving a transgressor. In line with these prior findings, we advanced the following two hypotheses:

Hypothesis 1a: A financial compensation activates mentalizing, conflict monitoring, and salience monitoring regions in the brain, which are associated with forgiveness.

Hypothesis 1b: A financial compensation results in trust repair through the activation of the forgiveness related brain areas.

With regard to the second process of affirming the victim's social standing, it is important to realize that a trust breach not only disrupts the relationship itself, but also leads to a disequilibrium in the broader social context as it decreases the perceived standing of the victim relative to that of the transgressor. In this regard, the provision of a financial compensation also reestablishes the standing of the victim, which is expected to be experienced as socially rewarding (as one's

perceived social status is restored). Because organizations are characterized by highly interdependent situations, conflicts can easily lead to a decrease in employees' standing, which results in negative and socially painful work experiences (Deutsch, Coleman, & Marcus, 2006). It can thus be expected that being able to repair trust might be associated with rewarding feelings including happiness and satisfaction (De Cremer & Desmet, 2012). Stated differently, successful trust repair efforts may lead to a positive and rewarding experience related to one's social standing in work relationships. In line with this reasoning, theoretical analyses suggest that the impact of tangible responses (like financial compensations) on trust judgments indeed operate on the basis of reward/punishment systems (Lewicki & Wiethoff, 2000). As such, we delineate that financial compensation will be associated with brain regions activated during reward processing. Note that although receiving money can be rewarding as such, we hypothesize that the repair of broken trust (through financial compensation) is also socially rewarding.

Key components of the reward system include − besides the amygdala and the thalamus involved in affective processing – the ventromedial prefrontal cortex (vmPFC) and the ventral striatum (e.g., see Berridge, 2003; Elliott, Newman, Longe, & Deakin, 2003; Hommer et al., 2003; Knutson & Cooper, 2005; O'Doherty, 2004). Prior studies on the notion of trust have already demonstrated that the presence of trust is associated with activation in reward areas in the brain (e.g., Delgado et al., 2005; King-Cases et al., 2005). Important with respect to our present focus is the observation that social rewards are processed in the brain in a similar manner as non-social rewards (see Eisenberger & Muscatell, 2013; Zink et al., 2008). More precisely, these studies found that areas activated by social rewards greatly overlapped with areas activated by monetary rewards. The reward network is hence also activated in cases of social pleasures like when being treated fairly by others or when being socially esteemed (Izuma, Saito, & Sadator, 2008; Tabibnia, Satpute, &

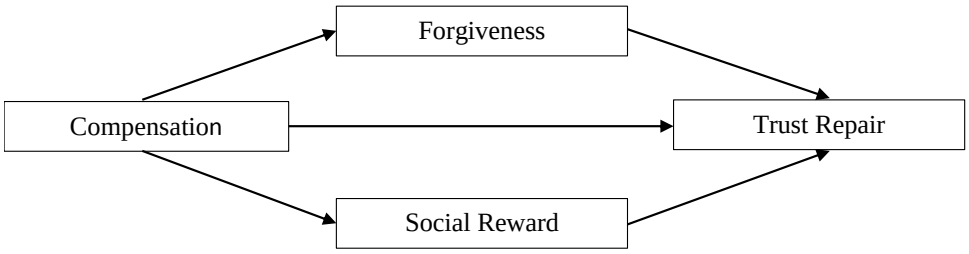
Lieberman, 2008). In a similar vein, we assume that the repair of broken trust might also be such a social pleasure. Based on these insights, we developed the following two hypotheses:

Hypothesis 2a: Even when controlling for receiving monetary reward in itself, a financial compensation activates brain areas associated with reward, because the affirmation of one's relative standings is experienced as socially rewarding and pleasurable.

Hypothesis 2b: A financial compensation results in trust repair through the activation of the social reward related brain areas.

In summary, it is important not only to understand whether trust repair attempts work, but also how they work. In this light, the present paper is the first – at least to our knowledge – to identify and assess the cognitive mechanisms that are evoked by financial compensation. Existing studies, using self-report measures, have provided some insight into which mechanisms might be relevant for the trust repair process, but the mediating effects have not yet been directly tested in behavioral research (for a notable exception, see Dirks et al., 2011), let alone in neuroimaging research where the use of mediation analyses is rather scarce. Based on our adopted social equilibrium perspective, we predict that forgiveness and social reward experiences play a key role in the compensation-based trust repair process. Figure 1 provides a visual representation of our proposed mediation model.

Figure 1. Proposed model of the compensation-based trust repair process in the aftermath of a tangible trust violation.



Method

Participants

Twenty-nine right-handed adult (under)graduate students from a Belgian University participated in our study. Two participants were excluded from the analyses, one due to movement artifacts and another based on severe suspicion of a neurological disorder. The remaining 27 participants (8 males and 19 females) had a mean age of 23.59 years (*SD* = 2.62). All participants were native Dutch speaking and had the Belgian nationality. Participants had normal or corrected-to-normal vision. Informed consent was obtained in a manner approved by the Medical Ethics Committee at the University Hospital where the study was conducted. Participants received €40 for their participation, plus an additional amount which was said to be determined by their outcome in the experiment. In fact, each participant received a surplus of €10.

Dictator game

In the neuropsychological literature it has been argued that when drawing psychological inferences from resulting brain activity "it is critical to use psychologically valid behavioral tasks in conjunction with neuroimaging" (Amodio, 2010, p. 708). Therefore, in our study we employed the dictator game, as this

particular game has already been used extensively in prior behavioral and neuroimaging research to investigate various trust-related issues (e.g., DeCelles, DeRue, Margolis, & Ceranic, 2012; De Cremer, 2010; Strobel et al., 2011; Will et al., 2014). In the dictator game, an allocator has absolute power to divide resources between him- or herself and a recipient. Following prior behavioral research, trust was violated through an unequal division that violated the equality norm (see Desmet et al., 2011; Haesevoets et al., 2013; Haesevoets, Van Hiel, et al., 2014). Afterwards, trust was repaired by the provision of a financial compensation by the allocator that restored equality between both players.

Procedure and stimulus material

Pre-scanning

Before entering the scanning room, participants received written and oral instructions. Participants were informed that during the experiment they would play a series of games with other students who were simultaneously conducting a behavioral experiment at another building across campus. In reality, however, the other players and their behaviors were all simulated. Participants were further told that they would play these games for real money. During fMRI-scanning, participants first performed the experimental task, followed by a control task. Participants were told that during the experimental task their opponents would be depicted using college ID photos. To be as realistic as possible, these photos were selected from the student pool of our university. Each photo was only presented once during the task. Because decisions to trust an unknown person are strongly associated with general judgments of facial trustworthiness, we pilot tested (n = 8) the trustworthiness of the photos on a seven-point scale (1 = *not at all trustworthy*, 7 = *very much trustworthy*). We selected only photos of which the mean trustworthiness score did not differ significantly (p > .05) from the scale's midpoint

(value 4). Before the experiment took place, participants were prescreened to verify that they experienced the unequal divisions that were used in our experimental task as trust violations.

Experimental task

During scanning participants engaged in an experimental task (see Figure 2A), which was modelled after the dictator game. First, to induce ownership over the money that was going to be divided during the task, both players were provided with a starting budget of €5, €10, or €15 (see Appendix A), which they both had to invest in the task. This information remained on the first screen until the participant pressed a response box button (positioned under his or her left hand) to continue. Subsequently, the participant was presented a second screen which informed him or her that the allocator was in the process of making a decision (3000-5000 ms). On the third screen the participant was confronted with the equality manipulation. Here, the participant was informed about the allocator's decision, who either divided the resources equally (*Equal Division* condition) or unequally (*Unequal Division* condition) (3000-5000 ms). The unequal divisions varied from €2 versus €8 to €1 versus €29 in favor of the allocator (see Appendix A). After the equality manipulation, the participant was asked to rate his or her satisfaction with this division by pressing the appropriate button on the response box (not satisfied/satisfied). After the participant responded, a fifth screen appeared stating that the allocator was being informed about the participant's (dis)satisfaction with the division (2000-4000 ms). If the participant indicated that he or she was not satisfied with the unequal division, the participant subsequently proceeded to the compensation manipulation. The sixth screen was then presented which informed the participant that the allocator either provided him or her no additional money (*No Compensation* condition) or a compensation that exactly restored equality (*Compensation* condition) (5000-7000 ms). The financial compensations ranged

from €3 to €14 (see Appendix A). Following this compensation manipulation, the participant proceeded to the final screen to rate the extent to which he or she trusted the allocator on a four-point scale (1 = *not at all*, 4 = *very much*). Participants receiving an equal division and participants who indicated to be satisfied with an unequal division immediately proceeded to rate the trustworthiness of the allocator, without having received the compensation manipulation. Participants played 80 trials of the dictator game. Both the Equal and the Unequal Division condition consisted of 40 trials. The Unequal Division condition was further split-up in the No Compensation (20 trials) and the Compensation condition (20 trials). All 80 trials were presented in a random order and separated by a 30-second pause after 20 trails each.

Control task

Following the experimental task, a control task (see Figure 2B) was presented to identify brain regions activated upon receiving a financial reward, independent of any social interaction. During this task, the participant either received no monetary reward (*No Reward* condition) or a monetary reward (*Reward* condition) from the computer (2000-4000 ms). The rewards varied between €3 and €14, and were thus similar to the compensations used in the experimental task. After the reward manipulation, the participant had to indicate the extent to which he or she was happy with the monetary reward on a four-point scale (1 = *not at all*, 4 = *very much*). Both the No Reward and the Reward condition consisted of 20 trials, which were also presented in a random order.

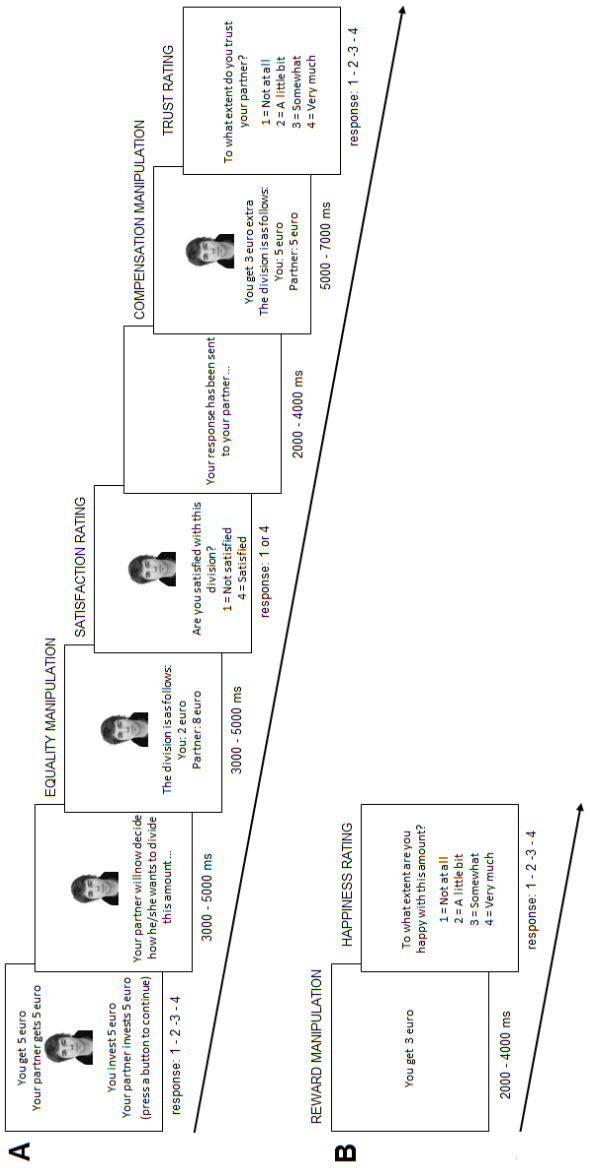


Figure 2. Schematic illustration of stimulus material. (A) Experimental task: Example of a Compensation trial. (B) Control task: Example of a Reward trial.

Post-scanning

When the scanning was completed we checked whether participants had recognized any of their opponents, which was not the case. Moreover, we also asked whether participants were aware that they had played against preprogrammed players. Four participants mentioned that they had noticed that the behaviors of the other players were simulated. We retained these participants in the analyses because excluding these participants revealed the same fMRI clusters with approximately the same peaks for the most critical contrast that compared brain activation after receiving Compensation versus No Compensation (with exception of the left AI). Before leaving, participants were thoroughly debriefed and paid for their participation.

Imaging procedure

Images were collected using a 3 Tesla Magnetom Trio MRI scanner system (Siemens medical Systems, Erlangen, Germany), with a 32-channel radiofrequency head coil. Stimuli were projected onto a screen at the end of the magnet bore that participants viewed by way of a mirror mounted on the head coil. Stimulus presentation was controlled by E-Prime 2.0 (www.pstnet.com/eprime; Psychology Software Tools) running under Windows XP. Foam cushions were placed within the head coil to minimize head movements.

We first collected a high-resolution T1-weighted structural scan (MP-RAGE), followed by one functional run (30 axial slices; 4 mm thick; 1 mm skip). Functional scanning used a gradient-echo echo-planar pulse sequence. The interval between image acquisitions is known as repetition time (TR). The repetition time in our study was 2 s. During this time, the signal was recorded sequentially over the whole brain in 2-dimensional slices with a 3.5 × 3.5 × 4.0 mm in-plane resolution. For functional imaging, we employed the Blood Oxygen Level Dependent (BOLD)

imaging method. This method relies upon local increases in blood flow and blood oxygenation to produce an increase in MRI signal from activated brain regions. Active regions utilize more oxygenated blood, which changes the magnetic properties that consequently cause changes in the BOLD signal. By combining high resolution structural brain images with functional scans we are able to accurately localize brain functions to specific brain areas.

Image processing

Our imaging procedure resulted in a large set of fMRI images, which are each composed of thousands of cubic elements called voxels. The spatial resolution is defined by the size of the imaging voxels. A voxel typically contains a few million neurons and tens of billions of synapses, with the actual number depending on the voxel size and the area of the brain being imaged. For functional images there is an added dimension of time as the BOLD signal is recorded for each voxel against time for the duration of the experiment. Importantly, before fMRI data can be statistically analyzed, the data for the functional run have to be preprocessed in order to remove sources of noise and artifact. All image processing and subsequent analyses were conducted using SPM12 (Wellcome Department of Cognitive Neurology, London, UK).

Slice timing correction

Because statistical analyses assume that signals from all the voxels at each time point are acquired at the same time, exact timing with respect to the stimulus presentation is of crucial importance. However, because the BOLD signal is collected slice-by-slice, some slices are collected later during a time point than others. Slice time correction involves the calculation of what the signal intensity of each voxel in each slice would have been had it been acquired at the same moment during a given time point. We used standard software methods to shift the data at

each voxel to interpolate the signal intensity at each time point from the same voxel in previous and subsequent time points.

Realignment

An important concern in most fMRI experiments is head movement during data acquisition. In this vein, minimizing head movements is one of the most important factors for ensuring good data quality. In cases of excessive head movements signal intensity at each voxel can get "contaminated" by the signal from its neighbors. We have used motion correction parameters to compensate for total amount of movements in six directions of rotation and translation. Functional data were realigned within and across runs to correct for head movement, and co-registered with each participant's anatomical data.

Normalization

Because of inter-subject brain differences it is important to extrapolate findings to the population as a whole. In this regard, spatial normalization establishes a one-to-one correspondence between the brains of different individuals by matching each subject to a standard template. Normalization is thus a key step in the data processing because it allows group analyses and generalizations of fMRI results. The functional data were transformed into a standard anatomical space (2 mm isotropic voxels) based on the ICBM152 brain template (Montreal Neurological Institute, MNI), which approximates Talairach and Tournoux atlas space. The MNI coordinate system is a three-dimensional system in which the location of a specific brain region is expressed in three coordinates (i.e., an x, y, and z value).

Smoothing

The functional anatomy of the brain may differ across participants. Therefore, it is important to spatially smooth the normalized data in order to reduce this spatial variance. Smoothing is performed by replacing the value of each voxel

with a weighted value of its own value and those of its neighboring voxels by averaging each voxel with its neighbors. Put straightforwardly, smoothing entails that data points are averaged with their neighbors in order to "blur the sharp edges." In our study the data were spatially smoothed (6 mm full-width at half-maximum, FWHM) using a Gaussian Kernel.

Data movement inspection

The processed data were finally examined, using the Artifact Detection Tool software package (ART; http://web.mit.edu/swg/art/art.pdf; http://www.nitrc.org /projects/artifact_detect), for excessive motion artifacts and for correlations between motion and experimental design, and between global mean signal and experimental design. Outliers were identified in the temporal differences series by assessing between-scan differences using the following criteria in ART (Z-threshold: 3.0 mm, scan to scan movement threshold: 0.5 mm; rotation threshold: 0.02 radians). By default, these outliers were omitted from the analyses by including a single regressor for each outlier. No correlations between motion and experimental design or global signal and experimental design were identified. Six directions of motion parameters from the realignment step as well as outlier time points (defined by ART) were included as nuisance regressors. We used a default high-pass filter of 128 s and serial correlations were accounted for by the default auto-regressive AR(1) model.

Statistical analyses

Fist-level analyses

In line with most prior neuroimaging studies, fMRI data analyses were carried out within the general linear model (GLM) framework. These analyses involved first-level, single participant analyses with a regressor for each condition time-locked at the presentation of the stimulus slide, six movement artifact regressors, and a variable amount of artifact regressors determined by ART. After applying a canonical response function with event duration set to 0, using the

general linear model of SPM12, a reparameterization procedure (developed by Lindquist & Wager, 2007) was applied to estimate the height, latency, and width of the hemodynamic response function for each block. The analysis returns Area Under the Curve (AUC) images that take into account the time to reach the maximum amplitude post stimulus onset, and the duration of the hemodynamic response.

Second-level analyses

Analyses of interest were performed at the second, group level on the AUC parameter estimates (regressors) associated with each condition using a random-effects model. Brain activation was measured and whole-brain contrasts were computed during four phases in the experimental task: (a) Equality manipulation: Immediately after receiving an (un)equal division of resources (Equal vs. Unequal Division), (b) Satisfaction rating: After the equality manipulation while rating one's satisfaction with the (un)equal division (Equal vs. Unequal Division: during Satisfaction rating), (c) Compensation manipulation: Immediately after receiving (no) compensation (Compensation vs. No Compensation), and (d) Trust rating: After the compensation manipulation while rating one's trust in the opponent after receiving (no) compensation (Compensation vs. No Compensation: during Trust rating). A detailed description of these contrasts is included in Appendix B. Importantly, in order to be able to investigate the unique neural correlates of trust repair, independently from monetary reward in itself, the contrast analyses for each of these four phases were exclusively masked with the Reward > No Reward contrast of the control task (i.e., the activation responsible for Reward was left out of all activations reported for the experimental task). A voxel-based statistical threshold of $p < .001$ (uncorrected) was used for all analyses with a minimum cluster extent of 10 voxels. We report only the significant clusters, $p < .001$ FWE cluster-corrected.

Regions of interest

Because of our theoretical interest in the striatum and the vmPFC as key regions in reward (see Eisenberger & Muscatell, 2013), we also computed Regions of Interest (ROIs) as spheres with a radius of 8 mm and for the striatum centered around the MNI coordinates (-12 12 -6; 12 10 -6) reported in the meta-analysis of Bartra, McGuire, and Kable (2013; their Table 1, positive effects) and for the vmPFC centered around the MNI coordinate (0 50 5) averaged from the coordinates reported in the meta-analysis of Van Overwalle (2009; his Table 1, reward learning). We used the same thresholds as for the whole-brain analyses. However, because the number of voxels involved is strongly reduced, the number of comparisons is also reduced, so that there is less FWE correction needed (therefore also called "small volume" correction) leading to a reduced chance of false negatives. Apart from these two reward related ROIs, additional forgiveness related ROIs were identified as spheres with a radius of 8 mm and with centers around the peak coordinates of significant clusters reported in Table 1 during the compensation phase in the bilateral IPL (extending to the TPJ; 36 -40 42; -40 -36 44), bilateral superior frontal cortex (32 20 64; -22 -2 56), and bilateral AI (32 20 6; -34 20 0). There were no significant clusters of interest during the division phase of the experiment.

Percent signal change

To reduce the possibility that change in the baseline BOLD signal from person to person would artificially add variance to subsequent analyses, it is recommended to convert each participant's raw BOLD signal at each time point to a percentage. In our study, the mean percent signal change in all identified ROIs was extracted using the MarsBar toolbox (http://marsbar.Sourceforge.net). We then computed correlations between the trust ratings and brain activation in these ROIs across participants.

Mediation analyses

Next, to test whether forgiveness and social reward activations mediate the effects of compensation on trust repair, we followed Hayes (2016) analysis strategy to calculate direct and indirect effects using a categorical predictor (by employing Model 4 of the SPSS macro PROCESS; based on 5,000 bootstrap samples). In these analyses we used the mean percentage signal change extracted via MarsBar for selected forgiveness and social reward related brain areas as mediator variables (for a description of these regions, see the Results section).

Time-related analyses

Lastly, to investigate if the neurocognitive signals associated with trust repair through financial compensation change over the course of our experiment, we conducted additional analyses in which we divided the experimental task in four evenly spaced time blocks. We subsequently investigated whether the reported activations differ across these time blocks.

Results

Behavioral results

The participants indicated at several places in the experimental and control task how they responded to the manipulations. These responses indicate that the great majority of the participants reacted as might be expected during most of the trials. First, immediately after the division of resources by the opponent, 99.35% was satisfied with an Equal Division, while only 0.65% was satisfied with an Unequal Division. Secondly, at the end of each trial, participants indicated that they trusted the opponent most after an Equal Division (M = 3.77, SD = 0.35), followed by a moderate level of trust after Compensation (M = 2.73, SD = 0.41), and they gave the lowest trust rating after No Compensation (M = 1.11, SD = 0.18). A repeated measures analysis of variance (ANOVA) with the three experimental conditions as

within-subjects variables revealed a significant main effect of condition, $F(2, 52) = 613.73$, $p < .001$, $\eta^2_p = .96$. Subsequent paired t-tests revealed that all three conditions differed from each other (all ts > 15.90, ps < .001). Furthermore, a paired t-test indicated that in the control task participants indicated greater happiness after receiving a Reward ($M = 3.35$, $SD = 0.30$) than when No Reward was received ($M = 1.09$, $SD = 0.26$), $t(26) = 34.45$, $p < .001$.

Imaging results

Whole-brain contrast analyses

Whole-brain analyses are conducted on the whole brain as they search for activation in every single voxel in the entire volume of the brain. Whole-brain contrast analyses for each of the four experimental phases were performed. The results of these analyses are reported in Table 1 (see Appendix B for a detailed description of the contrasts). In the experimental task, the Equal > Unequal Division contrast resulted in higher activation in the right lingual gyrus extending to the right fusiform and calcarine cortex (see Figure 3). The same contrast when participants indicated their satisfaction after the equality manipulation revealed that these differences had dissipated. The Unequal > Equal Division contrast did not reveal clusters of activation (not after the equality manipulation, neither during the satisfaction rating). The Compensation > No Compensation contrast did show increased activation in the left cerebellum, bilateral IPL extending to the TPJ, bilateral superior frontal cortex, bilateral AI, and left inferior frontal cortex (see Figure 4A). Note that many of these regions have previously been linked to the experience of forgiveness (see Will et al., 2014), which confirms *Hypothesis 1a.* The same contrast when participants gave their trust ratings recruited again the left cerebellum and the bilateral IPL, but now showed increased activation in the pmFC and the bilateral middle frontal cortex (see Figure 4B). The No Compensation > Compensation contrast did not reveal increased activation (not after the

compensation manipulation, neither during the trust rating). Finally, in the control task – which served as exclusive mask for all previous whole-brain contrasts – increased activation for the Reward > No Reward was found in the left calcarine cortex, right superior parietal lobule, right cerebellum, left rolandic operculum, and right superior medial frontal cortex.

Figure 3. Brain activation related to the processing of Equality of Division. Whole-brain contrasts thresholded at $p < .001$ (uncorrected) with a minimum cluster extent of 10 voxels. OC = Occipital Cortex.

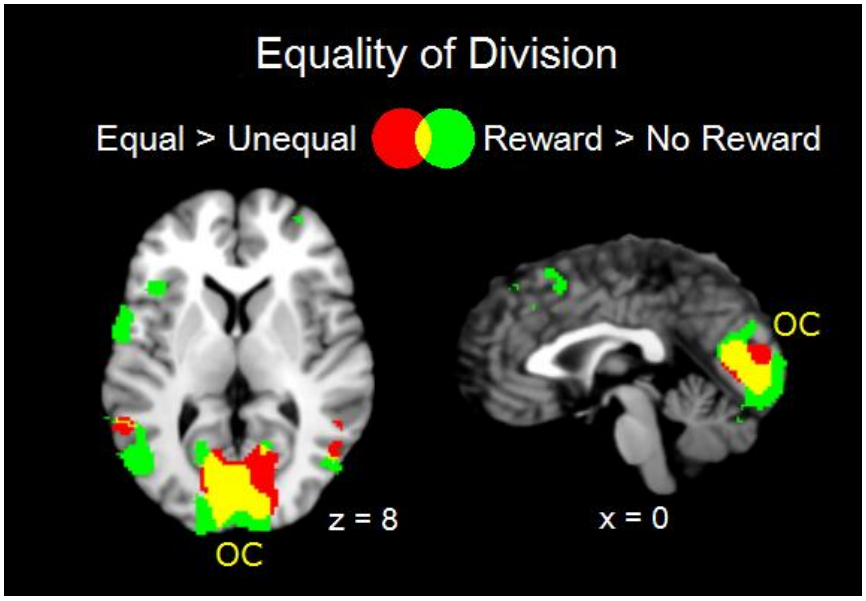


Figure 4. Brain activation related to the processing of (A) Compensation and (B) Trust Rating. Whole-brain contrasts thresholded at $p < .001$ (uncorrected) with a minimum cluster extent of 10 voxels. pmFC = posterior medial Frontal Cortex, SFC = Superior Frontal Cortex, IFC = Inferior Frontal Cortex, MFC = Middle Frontal Cortex, Ins = Insula, IPL = Inferior Parietal Lobule, TPJ = Temporo-Parietal Junction, OC = Occipital Cortex.

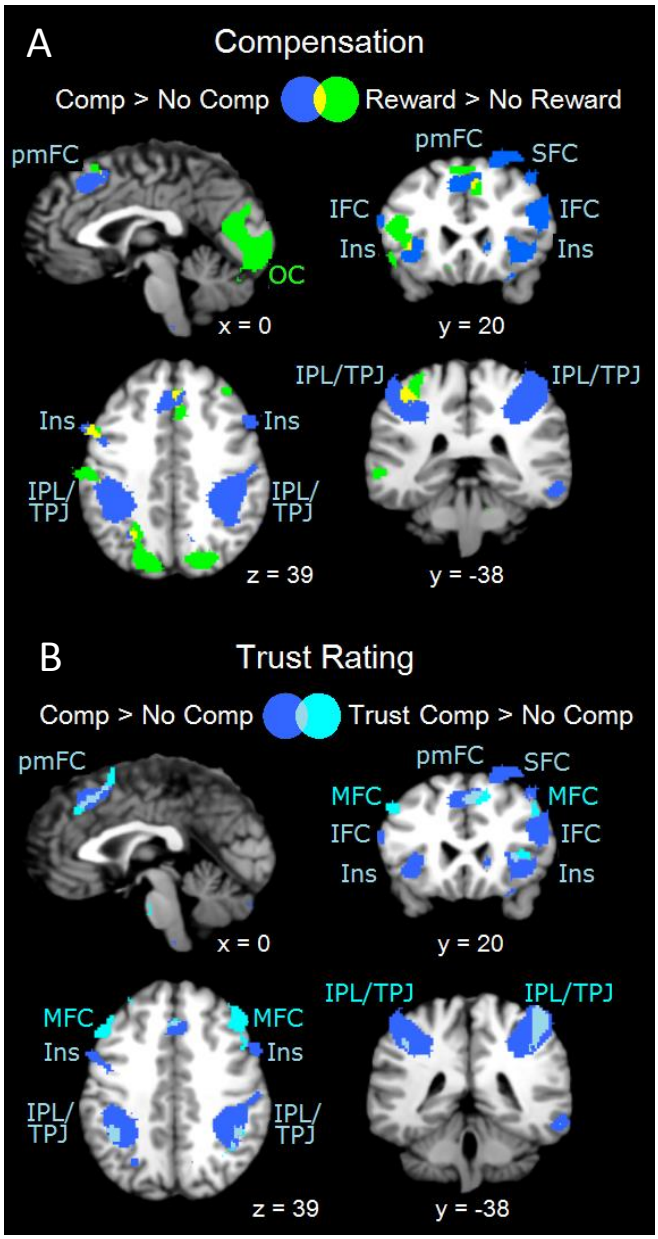


Table 1. Whole-brain comparisons exclusively masked with Reward > No Reward contrast of the control experiment.

		MNI coordinates				
Comparison and Anatomical Area	Voxels	x	y	Z	t	
Equal > Unequal Division						
R Lingual Gyrus	2519	14	-80	-4	5.93	**
R Fusiform Gyrus		28	-74	-6	5.75	**
R Calcarine Gyrus		10	-68	10	5.54	**
Unequal > Equal Division			---			
Equal > Unequal Division: during Satisfaction rating			---			
Unequal > Equal Division: during Satisfaction rating			---			
Compensation > No Compensation						
L Cerebellum Lobule VIIa Crus II	457	-40	-62	-48	5.12	*
R Inferior Parietal Lobule (ext. to TPJ)	2803	36	-40	42	7.96	***
R Postcentral Cortex		46	-32	48	7.83	***
R Postcentral Cortex		48	-34	60	7.52	***
L Inferior Parietal Lobule (ext. to TPJ)	1448	-40	-36	44	6.72	***
L Inferior Parietal Lobule		-32	-42	40	6.29	***
L Inferior Parietal Lobule		-38	-46	44	5.78	**
L Superior Frontal Cortex	935	-22	-2	56	5.27	*
Posterior Medial Frontal Cortex		2	26	44	4.93	°
R Superior Frontal Cortex	868	32	20	64	5.28	*
R Superior Frontal Cortex		24	2	62	5.11	*
R Superior Frontal Cortex		24	22	60	4.97	°
R anterior Insula	2147	32	20	6	5.04	°
R Inferior Frontal p. Opercularis		54	16	20	5.04	°
R Inferior Frontal p. Opercularis		52	14	28	4.97	°
L anterior Insula	242	-34	20	0	5.21	*
L Inferior Frontal p. Triangularis	650	-50	46	12	5.05	°
L Middle Frontal Cortex		-40	40	16	4.93	°
ROI: L Striatum	31	-8	10	-6		*
		-10	14	0		*
ROI: R Striatum	27	14	16	-2		**
ROI: Ventromedial Prefrontal Cortex			---			
No Compensation > Compensation			---			

Table Continued

Compensation > No Compensation: during Trust rating						
L Cerebellum Lobule VIIa Crus II	536	-36	-56	-44	4.98	°
R Inferior Parietal Lobule	1841	40	-50	56	5.52	**
L Inferior Parietal Lobule	553	-40	-48	60	4.23	
Posterior Medial Frontal Cortex	513	12	16	50	4.52	
R Middle Frontal Cortex	2114	48	32	32	5.71	**
L Middle Frontal Cortex	482	-48	36	30	5.00	°
No Compensation > Compensation: during Trust rating			---			
Exclusive Mask: Reward > No Reward (Control Task)						
L Calcarine Gyrus	10444	-4	-86	-4	7.78	***
L Middle Occipital Cortex		-20	-86	18	6.97	***
L Superior Occipital Cortex		-14	-90	2	6.91	***
R Superior Parietal Lobule	617	30	-54	64	5.23	
R Cerebellum Lobule VI	448	24	-52	-30	5.61	*
L Rolandic Operculum	653	-60	0	8	5.21	
R Superior Medial Frontal Cortex	487	8	34	48	4.46	
ROI: L Striatum	6	-12	18	-10		**
		-8	18	-8		*
ROI: R Striatum			---			
ROI: Ventromedial Prefrontal Cortex			---			

Note. x, y, and z = Montreal Neurological Institute (MNI) coordinates of the peak values; t = t-score of the peak values; L = left, R = right, ext. = extending. Whole brain analyses with cluster extent > 10 voxels with $p < .001$ uncorrected. Listed are clusters that are significant at $p < .001$, cluster FWE-corrected. ROIs were analyzed with a small volume correction, using the same thresholds. ROIs were centered around -12 12 -6 and 12 10 -6 (Striatum) and 0 50 5 (vmPFC) with a radius of 8 mm.

° $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$ (peak FWE-corrected).

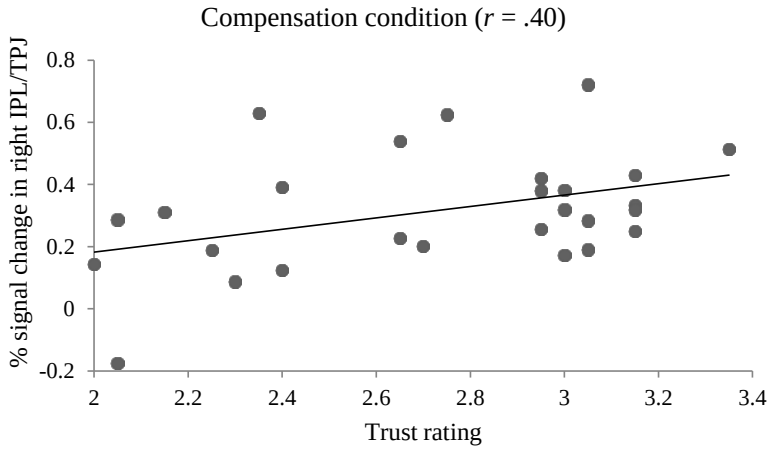
Regions of interest contrast analyses

Additional ROI analyses are conducted on ROIs or clusters of voxels that are selected because of the specific interest in that particular region. In this light, we also conducted ROI analyses for the striatum and the vmPFC, as these are two key areas of the reward network. The results of these analyses revealed that for both the Compensation > No Compensation contrast (which was again masked with the control task) and the Reward > No Reward contrast we found increased activation in the striatum (see Table 1). In corroboration with *Hypothesis 2a*, it can thus be concluded that receiving financial compensation is also experienced as socially rewarding.

Correlation analyses

To avoid chance capitalization, we computed correlations only during the compensation phase and for ROIs that were theoretically related to reward or showed significant forgiveness related brain activity. This limited the correlations to reward related ROIs in the striatum and vmPFC and forgiveness related ROIs in significant clusters during the compensation phase in the bilateral IPL (that included the TPJ), bilateral superior frontal cortex, and bilateral AI. The results of these correlation analyses revealed a positive correlation between trust ratings at the end of each trial and activation in the right IPL/TPJ after the compensation manipulation (r = .40, p < .05; see Figure 5). A correlation in the similar direction was found in the left IPL/TPJ, but this was non-significant.

Figure 5. After receiving Compensation activation in the right inferior parietal lobule (extending to the temporoparietal junction) is positively correlated with the trust ratings at the end of the trial.

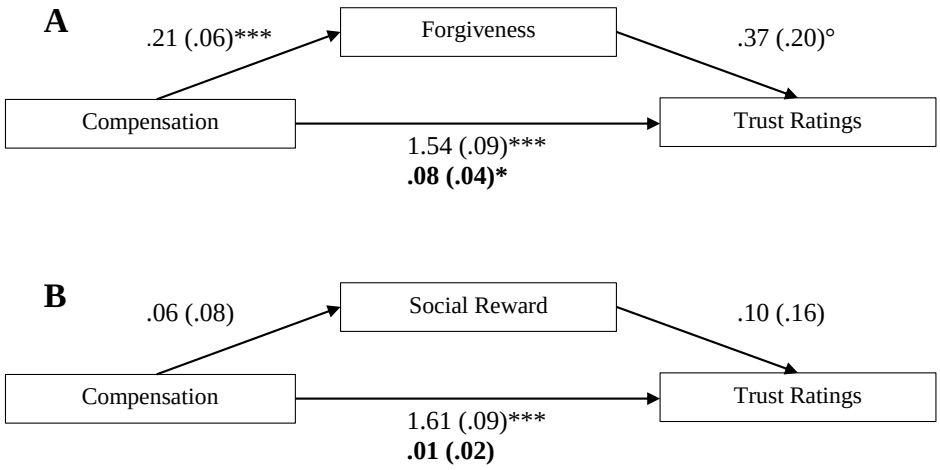


Mediation analyses

We first conducted a mediation analysis in which we used the mean percent signal change in the right IPL/TPJ as an indicator of forgiveness activation. We selected this forgiveness related brain area because it was most strongly activated after receiving compensation (see Table 1) and this activation was correlated with ratings of trust. In agreement with *Hypothesis 1b*, the mediation analysis (see Figure 6A) confirmed that the indirect effect of compensation on the ratings of trust via activation in the right IPL/TPJ was significant (b = .08, Boot SE = .04, 95% CI: [.01, .18]). The direct effect of compensation on the trust ratings also remained significant (b = 1.54, SE = .09, p < .001), thus indicating partial mediation. The indirect effect remained significant even when controlling for activation in left IPL/TPJ (b = .04, SE = .03, 95% CI: [.00, .12]). Next, we conducted a similar mediation analysis in which we used the mean percent signal change in the bilateral striatum as an

indicator of social reward activation, because this area is theoretically related to reward and the left and right striatum were both equally strongly activated after receiving compensation (see Table 1). Contrary to *Hypothesis 2b*, the mediation analysis (see Figure 6B) revealed that the indirect effect of compensation on the ratings of trust via activation in the striatum was not significant (b = .01, SE = .02, 95% CI: [-.01, .07]). The present results thus reveal that only forgiveness supports the link between compensation and trust repair.

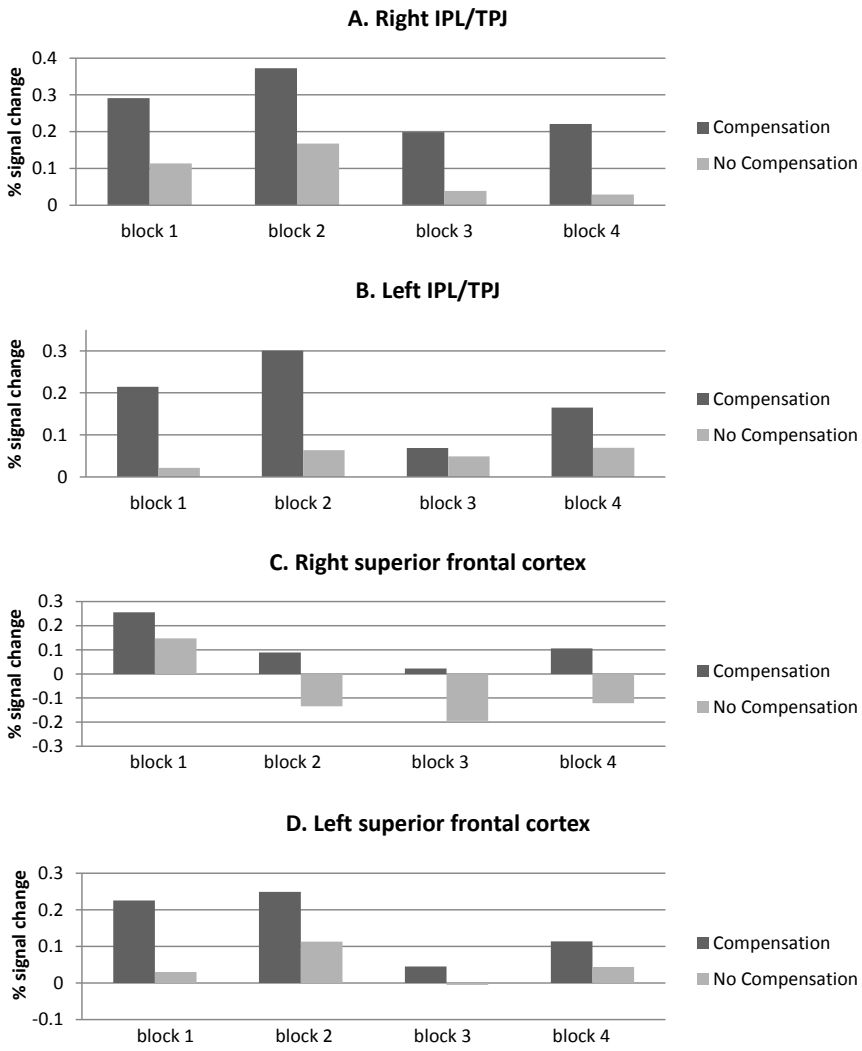
Figure 6. Effect of the compensation manipulation on self-reported trustworthiness through (A) activation in forgiveness related brain areas (in term of percent signal change in the right inferior parietal lobule, extending to the temporoparietal junction) and (B) activation in social reward related brain areas (in terms of percent signal change in the bilateral striatum). Values reflect b with SE between parentheses. ° $p < .08$, * $p < .05$, *** $p < .001$. The second value (at the bottom in bold) reflects the indirect of forgiveness/reward.

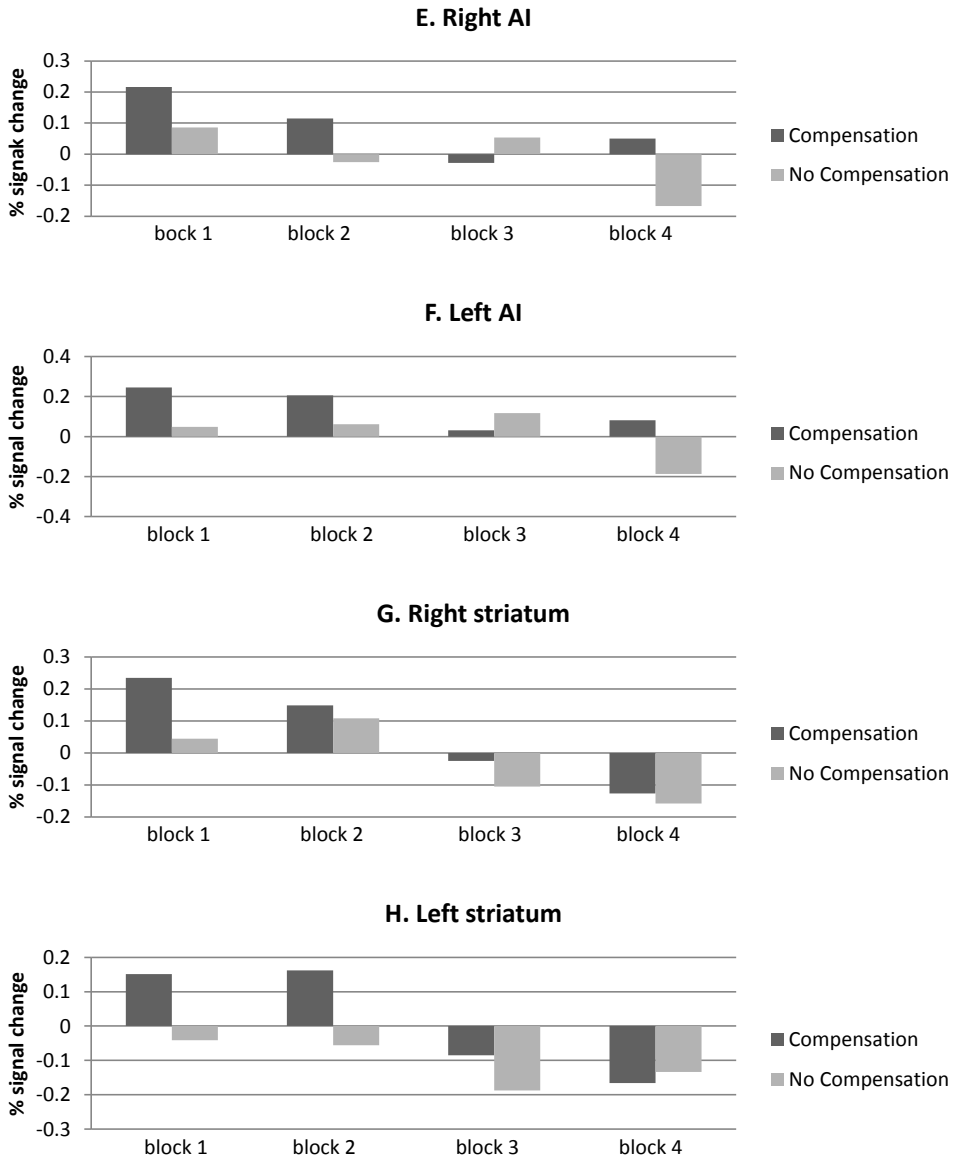


Time-related analyses

Finally, the experimental task was divided in four equal time blocks in order to explore whether the neurocognitive signals associated with trust repair by financial compensation are stable over time. Activations for significant ROIs during the compensation phase (i.e., bilateral IPL/TPJ, bilateral superior frontal cortex, bilateral AI, and bilateral striatum) were investigated with repeated measures ANOVAs using a 4 (time block) × 2 (compensation) within-subjects design. If Mauchly's test indicated that the assumption of sphericity was violated, Greenhouse-Geisser correction was applied. The results of these analyses are visually displayed in Figure 7. These analyses confirmed the main contrast of Compensation > No Compensation reported earlier for most ROIs, Fs > 4.35, ps < .05, η^2_ps > .14. The only exceptions were the right superior frontal cortex and the left AI, for which the main effect of compensation was almost significant, Fs > 3.75, ps < .07, η^2_ps > .12, and the right striatum, for which there was no significant main effect of compensation, $F(1, 26) = 2.43$, $p = .13$, $\eta^2_p = .09$. Furthermore, for most ROIs the results failed to reveal a significant main or interaction effect of time block, Fs < 2.25, ps > .08, η^2_ps < .08. Here, the only exceptions were the left superior frontal cortex and the right striatum, for which there was a significant main effect of time block, Fs > 3.01, ps < .04, η^2_ps > .10. Subsequent post-hoc tests (with Bonferroni correction) revealed that activation in the left superior frontal cortex was significantly higher in the second block than in the third block ($p = .03$). Activation in the right striatum was marginally higher in the first two blocks than in the fourth block (ps < .10). Overall, it can be concluded that the neurocognitive signals associated with forgiveness and social reward are relatively stable as they do not substantially change over time.

Figure 7. Percent signal change during the compensation phase in function of the time block and the compensation manipulation in the (A/B) right/left inferior parietal lobule (extending to the temporoparietal junction), (C/D) right/left superior frontal cortex, (E/F) right/left anterior insula, (G/H) right/left striatum. Significant main effects of time block were found in D (block 2 > block 3) and G (block 1-2 > block 4).




E. Right AI
% signak change
0.3
0.2
0.1
0
-0.1
-0.2
bock 1
block 2
block 3
block 4
Compensation
No Compensation
F. Left AI
% signal change
0.4
0.2
0
-0.2
-0.4
block 1
block 2
block 3
block 4
Compensation
No Compensation
G. Right striatum
% signal change
0.3
0.2
0.1
0
-0.1
-0.2
block 1
block 2
block 3
block 4
Compensation
No Compensation
H. Left striatum
% signal change
0.2
0.1
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-0.1
-0.2
-0.3
block 1
block 2
block 3
block 4
Compensation
No Compensation

Discussion

Our study set out to investigate, in interdependent exchange situations, the neural underpinnings of financial compensation, which is regarded as an effective response to improve the trustworthiness of the transgressor (Bottom et al., 2002; Desmet et al., 2010, 2011; Haesevoets, Van Hiel, et al., 2014). As organizations are defined by means of interdependent relationships, repairing trust when it is violated is of great importance to their long-term effectiveness and performance (Kramer & Lewicki, 2010). However, researchers (and by extension practitioners) know very little about why tangible responses positively affect trust. The present study contributes to ample theoretical and practical issues in the trust repair literature, which we will discuss below.

Evaluation of hypotheses

The first major contribution of our research concerns the finding that trust repair efforts – under the form of financial compensations – have a significant effect because they elicit forgiveness. Corroborating *Hypothesis 1a*, our whole-brain analyses revealed that receiving a financial compensation (vs. no compensation) was associated with increased activation in the IPL extending to the TPJ (mentalizing network), inferior and superior frontal cortices (conflict monitoring network), and AI (salience monitoring network). According to Will et al. (2014; also see Strang, Utikal, Fischbacher, Weber, & Falk, 2014) these regions are all associated with forgiving a transgressor, a transition process that requires perspective-taking as revealed by the activation of the TPJ (see Lamm, Batson, & Decety, 2007), executive control as shown by the activation of the frontal cortices (see Botvinik et al., 2004), awareness of and control over one's own interceptive sensations and feelings shown by the activation in the AI (see Menon & Uddin, 2010), and hence the suppression of a prepotent emotional tendency to retaliate (see Chester et al.,

2013). Moreover, additional analyses revealed that indeed a strong overlap exists between Will et al.'s (2014) clusters associated with forgiveness and the activations reported in our study after the compensation manipulation. We verified this by using the peaks of the TPJ (45 -54 36; -51 -48 36), superior frontal gyrus (9 36 36; -6 18 51), AI (33 18 -12; -30 21 -6), and lateral prefrontal cortex (-30 51 0) clusters reported by Will et al. (2014; 2nd part of their Table 2) as centers of ROIs (with a radius varying from 4 mm to 10 mm), which resulted in significant activation in these areas in our data. Moreover, in line with *Hypothesis 1b*, the importance of forgiveness was further demonstrated by our mediation approach, which revealed that forgiveness activation mediates the effect of financial compensation on experienced trust. As such, all our findings, combined with the results of prior neuroimaging (see Strang et al., 2014; Will et al., 2014) and behavioral studies (see Chung & Beverland, 2006; McCullough et al., 2003; Xie & Peng, 2009), clearly underscore that forgiveness is a necessary step for effectively rebuilding trust as it is activated by financial compensations, and drives the positive effect of those compensations on trust repair.

The second important contribution of our research concerns the fact that social rewards were experienced when interpersonal trust was repaired by means of financial compensations. Indeed, our results showed that financial compensation elicited activation *beyond* the mere reception of an equivalent monetary reward, which acted as a control task. Specifically, the results of our ROI analyses revealed increased activation in the striatum, one of the key components of the reward network (Eisenberger & Muscatell, 2013; Elliott et al., 2003), after the provision of a monetary reward (vs. no reward) in the control task. Important to note in this respect is that prior research has indicated that the reward network is not only activated when receiving a monetary reward but also in cases of social rewards (see Izuma et al., 2008; Zink et al., 2008). For that reason, we investigated the unique neural

correlates of trust repair – independently from monetary reward – by using this control task as an exclusive mask in our analyses. Even when controlling for this, the ROI analyses revealed that a part of the striatum was significantly activated when a financial compensation (vs. no compensation) was offered in reaction to a trust breach. These findings corroborate prior research by Izuma et al. (2008) and Zink et al. (2008) which reported that activity in the striatum reflects a common signal of reward in both financial and social domains. Moreover, in the whole-brain analyses we additionally found increased activation in the AI after receiving a financial compensation. This area has also been associated with the experience of reward (see Bartra et al., 2013; Knutson, Westdorp, Kaiser, & Hommer, 2000; Taylor et al., 2004). In line with *Hypothesis 2a*, our results thus indicate that financial compensations activate the reward network, even beyond the experience of a purely monetary reward.

Our mediation analysis, however, failed to reveal a unique mediation effect of social reward activation in the relationship between compensation and trust repair. *Hypothesis 2b* is thus not confirmed by the present data. In retrospect, this finding may not be that surprising. As mentioned earlier, a trust breach creates disequilibrium in both the relationship and the broader social context (see Dirks et al., 2009). A financial compensation restores the imbalance in the social context by reaffirming the victims' relative standing, which is experienced as socially rewarding. Yet, as our results indicate, it might take more to effectively repair trust than just the affirmation of the victim's standing. Indeed, our results show that to effectively repair trust it is of crucial importance that the disequilibrium in the specific interpersonal relationship is also dealt with. Here, forgiveness is important as it returns the relationship to a more positive state. Our neuroimaging findings thus have implications for the social equilibrium model, which suggests an equally

important role of forgiveness and social reward experiences in the trust repair process. This also underscores the importance that neuroimaging techniques can take to further shape and develop theoretical models of the processes that play a critical role in the repair of interpersonal trust.

Another interesting issue to consider is that even if forgiveness occurs, it may not be the case that only positive emotions are experienced. Rather, it may well be that a residue of negative emotions will remain, a state that requires effortful control and resolution of the emotional conflict. Such an effortful conflict resolution process is characterized by activation in the lateral frontal cortices, as demonstrated by Mak, Hu, Zhang, Xiao, and Lee (2009), who reported increased activation in the left superior frontal gyrus when participants were required to regulate negative emotions (also see McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008; Yoshimura at al., 2009). Interestingly, in both our study and the one by Will and colleagues (2014), this left superior frontal cortex was also activated when participants forgave the transgressor. Further support for the idea that a compensation-based trust attempt might lead to both positive and negative emotional reactions was, to a certain extent, also provided by our behavioral data. These data showed that although in the aftermath of an unfair resource allocation trust ratings were higher after receiving compensation compared to no compensation, trust levels after compensation were still significantly lower than when no trust violation occurred.

The important message of our data is that it suggests that although the provision of a monetary compensation is able to *repair* trust through forgiveness, full *restoration* is unlikely to take place. Indeed, the fact that compensations fail to fully restore broken trust is likely to be linked to the observation that forgiveness carries both positive and negative emotions. As described by Dirks and colleagues (2009, p. 79), an appropriate metaphor to distinguish between repair and restoration may be “a flower vase in which the broken pieces have been cemented, the joints

sanded, and the vase reglazed so that there is absolutely no visible trace of the break" (paralleling restoration) versus "a flower vase in which a simple cementing process has been used so that the fracture lines and glue joints can still be seen" (paralleling repair). In light of this, our research also adds to the literature by showing that trust in its post-repair state is not the same as in its pre-repair state, an issue which received only scant research attention. Future research is needed to further investigate our claim regarding the hypothesized emotional ambivalence related to forgiveness.

Managerial implications

Our findings also imply important managerial implications. Conflicts can be pervasive in organizational settings and therefore managers need to know which available means can be used effectively to ensure that trust is not destroyed. Within organizations monetary cues are prevalent and the present findings illustrate that these cues, as operationalized by a financial compensation, indeed elicit feelings of forgiveness and are experienced as socially rewarding. These general findings underscore the importance of substantive responses for managers to use when dealing with trust crises that have tangible consequences for their employees (cf. Dirks et al., 2011; Sitkin & Roth, 1993).

Another important contribution of the present paper is that our time-stamped data allowed us to investigate whether the neurocognitive signals associated with forgiveness and social reward change over time, which does not seem to be the case as the reported activations were relatively stable over the course of our experiment. This finding is important in light of the observation that in organizations employees are regularly confronted with trust breaches (see Conway & Briner, 2002; Dirks et al., 2011). From this point of view, it is necessary to examine the effects of compensation over time in order to examine its true effectiveness. Our results

indicate that if compensations are provided for repeated transgressions, they remain effective in evoking feelings of forgiveness and social reward, at least in cases of different transgressors. The positive effects of compensation in terms of enhancing trust are thus not limited to the first few trust repair attempts, but rather show stability over multiple trust repair episodes.

Limitations and directions for future research

In our study the trust breach resulted in a loss of tangible resources for the victim. In those cases, repair attempts in the form of monetary compensations undo the inflicted tangible harm, and as such present a condition under which trust can be repaired. The social equilibrium model, however, suggests that financial transgressions do not only violate victims' economic concerns, but also important relationship norms. As such, tangible trust violations also have relational consequences. Yet, when a trust breach is social rather than tangible in nature – like when being excluded from an interaction or socially undermined – the effectiveness of a financial compensation as a means to repair trust could be limited. Here, efforts that specifically focus on the harmed relational needs of the victim may be required more in order for trust to be effectively repaired. One such non-tangible response is the provision of a sincere apology. The present study's findings are thus primarily applicable to trust repair after tangible transgressions that have taken place.

This being said, scholars have argued that, despite their obvious difference in tangible costs, tangible and non-tangible responses are similar in a more fundamental way (see Dirks et al., 2011). More specifically, we may speculate that, although they are identified as distinct responses to different types of violations, tangible responses and non-tangible responses all repair trust in a similar fashion, that is, via the experience of forgiveness. Further research, however, is needed to further investigate this claim. Moreover, it is possible that social reward experiences are of greater importance for the apology-based trust repair process than for the

compensation-based trust repair process, because apologies not only reaffirm the victim's social standing but also convey respect to the victim (cf. Barclay & Skarlicki, 2008). Investigating the role of social reward experiences in the effectiveness of apologies might therefore also be a valuable avenue for future trust repair research.

Conclusion

Our study employed the fMRI methodology to examine the neural correlates of trust repair by tangible responses. Its findings underscore the use of neuroimaging techniques to gather unique insights into the question which processes (forgiveness and social rewards) are activated and play a role when trying to repair trust violations in settings that define organizations, that is, highly interdependent exchange relationships. We hope that the present study encourages future research to use this methodology to continue addressing issues related to trust repair in general, and the role of forgiveness and social rewards (and other potential mechanisms) in the effectiveness of tangible and non-tangible responses more specifically.

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Appendix A: Overview of trials employed in the experimental task

Number of trials	Start budget of both players	Initial division (participant vs. other)	Compensation amount	Final division (participant vs. other)
Equal Division condition				
8	5	5 vs. 5	n/a	5 vs. 5
16	10	10 vs. 10	n/a	10 vs. 10
16	15	15 vs. 15	n/a	15 vs. 15
No Compensation conditon				
2	5	2 vs. 8	0	2 vs. 8
2	5	1 vs. 9	0	1 vs. 9
2	10	4 vs. 16	0	4 vs. 16
2	10	3 vs. 17	0	3 vs. 17
2	10	2 vs. 18	0	2 vs. 18
2	10	1 vs. 19	0	1 vs. 19
2	15	4 vs. 26	0	4 vs. 26
2	15	3 vs. 27	0	3 vs. 27
2	15	2 vs. 28	0	2 vs. 28
2	15	1 vs. 29	0	1 vs. 29
Compensation conditon				
2	5	2 vs. 8	3	5 vs. 5
2	5	1 vs. 9	4	5 vs. 5
2	10	4 vs. 16	6	10 vs. 10
2	10	3 vs. 17	7	10 vs. 10
2	10	2 vs. 18	8	10 vs. 10
2	10	1 vs. 19	9	10 vs. 10
2	15	4 vs. 26	11	15 vs. 15
2	15	3 vs. 27	12	15 vs. 15
2	15	2 vs. 28	13	15 vs. 15
2	15	1 vs. 29	14	15 vs. 15

Appendix B: **Detailed description of the different contrasts**

The "Equal > Unequal Division" contrast investigates which brain regions show higher activation in the Equal Division condition as compared to the Unequal Division condition when the equality manipulation is presented on screen 3 of the experimental task (see Figure 2A). The same logic applies to the reverse [i.e., <] contrast. Thus, the "Equal < Unequal Division" contrast investigates which brain regions show lower activation in the Equal Division condition as compared to the Unequal Division condition, or stated differently, show higher activation in the Unequal Division condition as compared to the Equal Division condition.

The "Equal > [<] Unequal Division: during Satisfaction rating" contrast investigates which brain regions show higher [lower] activation in the Equal Division condition as compared to the Unequal Division condition when participants rate their satisfaction with the division on screen 4 of the experimental task (see Figure 2A).

The "Compensation > [<] No Compensation" contrast investigates which brain regions show higher [lower] activation in the Compensation condition as compared to the No Compensation condition when the compensation manipulation is presented on screen 6 of the experimental task (see Figure 2A).

The "Compensation > [<] No Compensation: during Trust rating" contrast investigates which brain regions show higher [lower] activation in the Compensation condition as compared to the No Compensation condition when participants rate the trustworthiness of their counterpart on screen 7 of the experimental task (see Figure 2A).

The "Reward > [<] No Reward" contrast investigates which brain regions show higher [lower] activation in the Reward condition as compared to the No Reward condition when the reward manipulation is presented on screen 1 of the control task (see Figure 2B).

Chapter 10

Research Overview and General Discussion

The present dissertation started out with the question if and how broken trust can be repaired in the aftermath of a trust violation. Given that it is not uncommon that people violate trust, we examined the extent in which financial compensations and apologies can actually increase broken trust as well as what factors influence the effectiveness of these two trust repair strategies. This final chapter summarizes the main findings reported in our empirical chapters and situates these findings within the global research goals of this dissertation. Furthermore, some contributions and implications of the present findings are also briefly discussed. We further point to the limitations of the present studies and highlight interesting pathways for future research.

Research overview

Trust has been considered to be a "social glue" that binds people, making it an essential ingredient of social life. Yet, it is not uncommon that people violate trust. The axiom that "trust takes years to build, seconds to break, and forever to repair" indicates that trust is easier to destroy than to (re)build. This notion has made researchers cautious to engage in research that they think is likely to be unsuccessful. The literature on trust has even created the idea that restoring trust may prove too difficult. Some scholars have even argued that broken trust cannot be repaired, and therefore "surprisingly few studies have directly examined how trust may be repaired" (Kim, Dirks, Cooper, & Ferrin, 2006, p. 50; also see De Cremer, 2010). In the present dissertation, we departed from this rather negative and pessimistic view that has dominated the literature on trust for so long and instead adopted a more positive view by claiming that human beings do have the capacity to restore trust after it has been violated. In this respect, the trust repair process can be compared with the metaphor of a broken bone (see Pratt & Dirks, 2007). A broken bone is a painful situation, but it can grow equally strong (or sometimes even stronger) than the initial unbroken bone. In a similar vein, in this dissertation we started from the assumption that if we develop the necessary understanding on how broken trust can effectively be repaired, harmed relationships can be put together again in a trustworthy manner.

In light of this more positive view on trust repair, in our empirical chapters we examined by which means and under which conditions effective trust repair is possible. We focused on the effectiveness of two different strategies (the offer of a financial compensation and the provision of an apology) that can be employed by transgressors. Moreover, in light of the factors that can influence trust repair we, for example, also investigated if and how the effectiveness of trust repair attempts is

influenced by the role of the actor (target versus non-involved observer) and the characteristics of the trust violation (competence versus integrity violations). Below, we will summarize the main findings of our eight empirical chapters.

Findings organized by chapter

Trust repair through financial (over)compensation

Trust breaches, which are prevalent in social life, often result in some sort of monetary loss for the victim. When such a tangible damage has been inflicted, transgressors can satisfy victims' outcome-related concerns by providing a financial compensation. Although prior studies have shown that financial compensations can effectively restore broken trust, it is still unclear whether larger compensations foster more trust.

In **Chapter 2** we conducted four empirical studies in order to investigate whether costly *overcompensations* have additional positive effects on top of the impact of less costly *equal compensations*. In line with a more psychological perspective on trust, the results of our studies revealed that overcompensation offers no positive effects in addition to the impact of equal compensation in terms of cooperation and relationship preservation, and that it even provokes negative outcomes in terms of lowered trust and less favorable perceptions of the transgressor. Our findings thus show that the effectiveness of overcompensation varies depending on the outcome that it targets. That is, overcompensation is as effective as equal compensation for more calculus-based outcomes like cooperation and relationship preservation, whereas overcompensation is less effective than equal compensation for more relational-based outcomes such as interpersonal trust and perceptions of the transgressor. Taken together, the findings of Chapter 2 provide preliminary evidence that overcompensation does not provide any surplus value and

can actually even backfire. In the following chapters we aimed to further explore this interesting finding.

In **Chapter 3**, we decided to move a step further by investigating whether the effect of overcompensation depends on the perspective of the person who evaluates the compensation. More specifically, we investigated whether target versus observer differences exist in the effectiveness of financial overcompensation as a trust repair strategy. The implicit message of an overcompensation signals that the transgressor is willing to go the extra mile. Intuitively, overcompensation has a certain appeal leading to the expectation of positive reactions. However, the findings done in Chapter 2 revealed that when victims actually receive overcompensation, it did not result in better outcomes than equal compensation. Interestingly, in real-life settings transgressors often offer victims an overcompensation, not only to repair their relationship with the victim, but also to avoid reputational damage and to positively influence the general public. Therefore, we examined if overcompensation entails positive effects for observers. In line with the findings of Chapter 2 our data revealed that for targets overcompensation resulted in lower levels of trust than equal compensation, while for observers equal compensation and overcompensation resulted in similar levels of trust. The findings of Chapter 3 thus complement the observations of Chapter 2, by demonstrating that overcompensation is neither a cost-effective repair strategy for third party observers.

Subsequently, in **Chapter 4** we examined how situational characteristics of the violation in terms of competence versus integrity violations affect victim's trust. In this vein, in the literature a central distinction has been made between violations that can be ascribed to a lack of competence and violations that are due to insufficient integrity on part of the transgressor (see Kim, Ferrin, Cooper, & Dirks, 2004; Kim et al., 2006). When a trust violation can be ascribed to a lack of competence, the wrongdoing is not indicative that the transgressor is a bad person

since everybody can display low performance levels under unfavorable conditions. As such, undoing the harm through an equal compensation should be sufficient to restore trust, and little benefit is expected to arise from additional compensation beyond equality. Yet, when a trust violation can be attributed to a lack of integrity, the wrongdoing signals that the perpetrator is a bad person as only people who fall short on certain moral values will display dishonest behavior. We expected that under these circumstances overcompensation might be needed in order for trust repair to occur. Two empirical studies were conducted to test these predictions. The results of these studies revealed that equal compensation and overcompensation can both effectively promote the restoration of trust for transgressions that indicate a lack of competence, whereas in case of integrity faults equal compensation and overcompensation are both ineffective to enhance trust. Moreover, for both violation types, overcompensation has no positive effects on top of the impact of equal compensation.

The data reported in Chapters 3 and 4 provide additional evidence for the finding that overcompensation is not more effective than equal compensation – and this is also true for observers and in case of severe transgressions in terms of integrity violations. Yet, it is fair to note that there are some researchers who have found positive effects of overcompensation on top of equal compensation (e.g., see Boshoff, 1997; Gilly & Hansen, 1985; Hocutt, Bowers, & Donavan, 2006; also see Desmet, De Cremer, & Van Dijk, 2011). A closer look at these studies reveals that the positive effects of overcompensation were mostly acquired with relatively small amounts of overcompensation, whereas in the prior chapters of this dissertation we consistently employed rather large overcompensations (i.e., compensations that were generally at least two times greater than the inflicted monetary damage).

Therefore, in **Chapter 5** we investigated how the size of the provided overcompensation influences its effectiveness. It can be predicted that small

overcompensations reveal additional positive effects because they signal goodwill on part of the transgressor and compensate the victim for potential extra costs that might be associated with the trust violation. From a certain point, however, additional overcompensation is expected to become ineffective as people experience large deviations from equality as unpleasant and unfair (Bazerman, White, & Loewenstein, 1995; Loewenstein, Thompson, & Bazerman, 1989). To test these predictions, we conducted four empirical studies in which we investigated the overcompensation effectiveness in cases of product failures. The use of financial compensation as a harm restoration strategy is ubiquitous is these settings, because for most companies occasional lapses in product (and service) quality are nearly inevitable, making attempts to restore such failures extremely relevant. Here too, companies can choose to provide dissatisfied customers more compensation than required to undo the failure with the aim to further increase their trust and loyalty. In line with our predictions, the data of our studies revealed that mild amounts of monetary overcompensation can enhance customer loyalty beyond equal compensation. However, once the overcompensation crossed a specific threshold its effectiveness started to decline, which aligns well with our prior findings that especially large amounts of overcompensation are not well received. Our results further indicated that there are also robust individual differences in how customers react to increasing levels of overcompensation.

Overcompensations can not only be used by companies as a compensation policy, but also as an advertisement strategy. In this context, promising customers to pay them more than the difference when another store sells the exact same item for a lower price is a commonly employed advertisement strategy. In the literature, such a low-price guarantee is often referred to as *price-beating* (see Kukar-Kinney, 2006; Kukar-Kinney & Walters, 2003). In **Chapter 6** we conducted five empirical studies in order to investigate if price-beating guarantees are more effective to attract

customers to a store than price-matching guarantees. In a first study we examined if marketers and shop owners believe that beating price differences is an effective advertisement strategy and compensation policy. Our data revealed that the majority of marketers and shop owners in our sample thought that beating a price difference is a more effective strategy than matching a price difference. However, our subsequent studies showed that the advertisement as well as the provision of a price-beating refund did not enhance customer loyalty beyond the level that was already reached by a price-matching refund. Moreover, our mediation analyses revealed that the observation that price-beating is not more effective than price-matching can be ascribed to its lower perceived fairness. Despite the additional costs that are associated with price-beating, price-matching and price-beating thus seem to be equally effective.

Chapters 5 and 6 hence indicate that even when the provider of the compensation is a company (rather than another person), the promise as well as the provision of (substantive) overcompensation (cf. price-beating) does not lead to more positive outcomes than equal compensation (cf. price-matching). Overcompensations are thus not only cost-ineffective in interpersonal relationships, but also in relationship between customers and companies.

Trust repair through apologies

The prior empirical chapters all focused on the effectiveness of financial (over)compensation as a harm restoration strategy. In the following two chapters we investigated if verbal strategies under the form of apologies are also of importance for the trust repair process.

In **Chapter 7** we investigated if in the aftermath of a tangible trust violation the provision of an apology has any additional positive effect on top of the impact of a financial compensation. In other words, we examined the combined effects of financial compensations and apologies. The results of two empirical studies revealed

that under certain circumstances apologies can enhance trust repair over and above financial compensation. More precisely, our findings indicate that apologies further encourage trust when the provided financial compensation is too low to undo the inflicted harm (i.e., undercompensation). This observation aligns well with prior research that stressed the importance of also appealing to relational motives when trying to achieve trust repair (e.g., see Bottom, Daniels, Gibson, & Murnighan, 2002; Kim, Dirks, & Cooper, 2009).

In **Chapter 8** we took a different focus by investigating the effectiveness of apologies in relationships at work. In this chapter we started from the assumption that leaders regularly have to make decisions, and that incorrect decisions can harm their followers. The aim of Chapter 8 was to show that in the case of an incorrect decision by a leader, the timing of when this decision was made influences how much an apology is needed. With regard to this timing dimension, leaders can make decisions in a hasty, timely, or delayed fashion. In this chapter we conducted five empirical studies in order to examine how the timing of incorrect decisions impact upon the effectiveness of leaders' apologies to repair followers' trust. The data of our studies revealed that the need for an apology was highest when an incorrect decision was preceded by delay, whereas apologies in fact were ineffective for repairing trust in this context. That is, our findings showed that the actual provision of an apology was effective for restoring both trustworthiness and trust after timely and hasty incorrect decisions, but ineffective when the same incorrect decision was delayed. Trust violations are thus particularly difficult to restore through apologizing in the context of delays.

Trust repair from a neuropsychological perspective

The previous empirical chapters of this dissertation all investigated the trust repair process by using behavioral research methods. In our last empirical chapter we employed a neuropsychological approach to the study of trust repair. An

increasing number of scholars have recently started to explore the neurobiology of trust. It is remarkable, however, that these prior neuroimaging studies solely focused on the neural substrates that are associated with the presence or absence of trust, while the neural mechanisms associated with the transition from a state of violated trust to a state of regained trust have not yet been empirically investigated. This is unfortunate, because trust violations are ubiquitous and neuroimaging techniques can serve as an important complement to behavioral methods. By employing an fMRI (functional magnetic resonance imaging) approach we were able to examine how the brain reacts to trust violations and subsequent repair attempts. In doing so, we are the first to look at the trust repair process by means of "looking into the brain."

In **Chapter 9** we have investigated the neural correlates of trust repair through equal financial compensation. The starting point of this study was the observation that although our prior studies all showed that compensations that reveal equal final outcomes for both parties are particularly (cost) effective to enhance trust, these studies have not revealed much evidence yet why it is that victims of a trust breach are willing to respond positively in terms of trust to an equal financial compensation. Our neuroimaging data indicated that receiving an equal compensation activates forgiveness and social reward related brain areas. Moreover, additional analysis revealed that forgiveness activation mediates the link between compensation and trust repair. Based on these results it can hence be concluded that forgiveness is actually a necessary step for effectively rebuilding trust as it is activated by equal compensations, and drives the positive effect of these compensations on trust repair.

General discussion

This dissertation provides some new and important insights in the effectiveness of financial compensations and apologies as means to repair broken trust. Throughout the empirical chapters of this dissertation, we have highlighted the major contributions and implications of the findings of each chapter individually. Here, we will discuss some general contributions and implications of our research. Also, we will formulate some limitations and avenues for future research.

Contributions and implications

The major contribution of the present dissertation is that in our empirical chapters (with the exception of Chapter 8) we investigated the effectiveness of a repair strategy that is commonly used, but did not yet receive much empirical attention. Indeed, a closer look at the literature on harm restoration reveals that scholars have focused almost exclusively on the effectiveness of verbal repair strategies like apologies and denials (e.g., see Kim et al., 2004, 2006; Tomlinson, Dineen, & Lewicki, 2004; Schweitzer, Hershey, & Bradlow, 2006). Although we recognize that verbal accounts can be effective to enlarge trust, trust violations often induce financial harm to the victim in terms of a monetary loss. Under these circumstances verbal responses may not be enough to restore trust because the tangible loss also needs to be addressed (Bottom et al., 2002). A common restorative tactic used in such situations consists of the transgressor reimbursing the victim for the infected loss. Although such financial compensations are prevalently used as a restorative response, very little is known about the factors that shape their effectiveness. Moreover, most prior compensation studies explored solely compensations that are smaller than or about equal to the damage suffered. On the basis of these studies, it was concluded that a monetary compensation in response to financial harm is an effective tool in restoring the victim's trust (e.g., see Bottom et

al., 2002). It can, however, be argued that effectively restoring broken relationships may ask more from a perpetrator than just exactly restoring the damage by providing the victim substantive compensation that goes beyond the mere damage.

In the first five empirical chapters of this dissertation we explicitly focused on the effectiveness of overcompensation as a trust restoration tactic. The critical question that we tried to answer with our research was whether costly overcompensation has beneficial effects in addition to the impact of less costly equal compensation. Chapters 2 to 6 revealed that especially large overcompensation is not a more effective trust restoration tactic than equal compensation. Importantly, this observation applied to different outcomes (calculus-based and relational based-outcomes; Chapter 2), perspectives (target and observers of the compensation; Chapter 3), and violation types (competence and integrity faults; Chapter 4). Similar findings were also reported when we investigated the effectiveness of overcompensation as a compensation policy and advertisement strategy in business settings (i.e., in customer-company relationships; Chapters 5 and 6). Taken these findings together, the present dissertation questions the popular belief that more money is automatically better, and that exceeding norms and expectations always positively influences people's evaluations. From an applied perspective, based on the findings of the current dissertation we would advise practitioners to keep the magnitude of compensations restricted to restoring equality (or equality plus just a little extra).

The lack of positive overcompensation effects indicate that it is not only the favorability of the outcome (in terms of the financial value of the compensation) that drives the process of trust repair. Put differently, outcome favorability is only one aspect of people's reaction to responses to harm. In line with this observation, Chapters 7 and 8 revealed that even in case of a purely financial harm, verbal response actions in terms of apologies can also facilitate trust repair, and this even

beyond the level that is reached by a monetary compensation alone. Additionally, the neuroimaging study conducted in Chapter 9 showed that financial compensation activates forgiveness and reward related brain areas. These activations were found even when controlling for receiving money in itself, which indicates that trust repair through financial compensation is also experienced as socially rewarding. The findings of these latter chapters further confirm the observation that even in a purely financial context, not only money seems to matter. The findings of this dissertation thus stress that besides financial motives, various relational concerns and fairness considerations should also be taken into account when investigating the trust restoration process (see also Curhan, Elfenbein, & Xu, 2006; De Cremer, 2002).

Limitations and directions for future research

Whereas the present dissertation provides useful new insights in the trust repair process, it is not without limitations. A first limitation of this dissertation is that we solely focused on trust violations that harmed the victim in a financial way by inducing a loss of tangible resources. However, not all trust violations harm victims financially. The question rises whether strategies that mainly address outcome-related concerns, such as financial compensations, exert similar effects in cases of violations that are social in nature, like when being excluded from an interaction or socially undermined. Future research is needed to investigate this interesting question.

Moreover, in the present dissertation we investigated trust violations and subsequent repair in relationships in which the victim and the transgressor had no prior interaction history. In this regard, it is important to mention that prior research has shown that violations in the initial stage of a relationship can have devastating long-term consequences (Lount, Zhong, Sivanathan, & Murnighan, 2008). We therefore believe that it is of great importance to examine the trust repair process in

early stages of relationships. This being said, the intriguing question remains how the trust repair process looks like in relationships that have a longer interaction history. Future research is needed to investigate the effectiveness of financial compensations and apologies in ongoing relationships.

The studies reported in the present dissertation all have in common that they departed from the perspective of the victimized party. That is, we have exclusively focused on the possibility of trust repair by examining the impact of financial compensations and apologies on victims' (and observers') trust in the transgressor. This is a logical starting point for investigating the feasibility of trust restoration, but an interesting next step is to focus on the transgressor's perspective by examining the circumstances under which a transgressor is actually willing to provide the victim a monetary compensation or apologize to the victim (see Desmet & Leunissen, 2014). We believe that the investigation of transgressors' willingness to restore harm provides an important avenue for future trust repair studies.

A final methodological limitation of our research concerns the use of mainly laboratory experiments and scenario studies to investigate the effectiveness of different trust repair strategies. Although an important advantage of these experimental methods is that they allowed us to test our predictions regarding the effectiveness of financial compensations and apologies in a controlled setting, an important shortcoming of the present dissertation is that we did not replicate our findings in more natural settings. It is fair to note that experimental research can create artificial situations that do not always represent real-life situations. Future research should therefore investigate whether the findings of the present dissertation regarding the effectiveness of financial compensations and apologies also hold true in field settings.

Conclusion

In the present dissertation we departed from the rather negative and pessimistic view that has dominated the literature on trust repair by employing a more positive perspective. This positive view holds that under certain circumstances broken trust can effectively be repaired. In this dissertation we combined behavioral and neuroimaging techniques, which enable us to investigate in more detail by which means and under which circumstances violated trust can effectively be repaired. As such, the present dissertation contributes important new insights to the complex and fascinating research domain of trust repair.

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Nederlandstalige Samenvatting

Kan gebroken vertrouwen hersteld worden? Een sociaal en neuropsychologisch perspectief

Inleiding

Vertrouwen is een essentieel onderdeel van het sociale leven. Dit komt onder meer tot uiting in het gegeven dat vertrouwen op de onderzoeksagenda staat binnen een verscheidenheid aan wetenschappelijke disciplines. Deze multidisciplinaire aanpak benadrukt dat vertrouwen alomtegenwoordig is in onze interacties met anderen. Binnen de psychologische literatuur wordt vertrouwen gedefinieerd als een psychologische toestand die de intentie omvat om zich kwetsbaar op te stellen naar anderen toe (zie Rousseau, Sitkin, Burt, & Camerer, 1998). Eerder onderzoek toont aan dat de aanwezigheid van vertrouwen een positieve invloed heeft op interpersoonlijke relaties, het bedrijfsleven en zelfs de samenleving als geheel. Ondanks dat vertrouwen een kostbaar goed is, lijkt het ook zeer kwetsbaar te zijn. De werkelijkheid leert ons namelijk dat vertrouwen vaak geschonden wordt. Gezien vertrouwensbreuken ongunstige effecten kunnen hebben, is het van groot belang om te onderzoeken of en hoe gebroken vertrouwen terug hersteld kan worden. Het doel van het huidige doctoraatsonderzoek was om meer inzicht te verschaffen in de effectiviteit van verschillende vertrouwens-herstelstrategieën.

Vertrouwensbreuken

Het merendeel van het voortgaand onderzoek naar vertrouwen heeft zich op de eerste plaats toegespitst op het begrijpen van wat er gebeurt als vertrouwen aanwezig is. Het is echter opmerkelijk dat er nauwelijks wetenschappelijke aandacht is besteed aan de overgang van een toestand van geschonden vertrouwen naar een toestand van herwonnen vertrouwen (De Cremer & Desmet, 2012). Deze conclusie is betreurenswaardig omdat vertrouwen erg fragiel is, en mensen hun alledaagse handelingen en beslissingen tal van mogelijkheden bieden om vertrouwen te schenden (zie bijvoorbeeld Bottom, Daniels, Gibson, & Murnighan, 2002; Kim, Dirks, Cooper, & Ferrin, 2006; Kim, Ferrin, Cooper, & Dirks, 2004; Schweitzer, Hershey, & Bradlow, 2006). Deze kwetsbaarheid komt tot uiting in het populaire gezegde dat het jaren duurt om vertrouwen op te bouwen, seconden om het te breken en een eeuwigheid om het terug te herstellen.

Voorafgaand onderzoek heeft uitgewezen dat vertrouwensbreuken kunnen leiden tot allerlei schadelijke gevolgen. Zo gaan vertrouwensbreuken vaak gepaard met gevoelens van achterdocht en wantrouwen ten opzichte van de overtreder (Elangovan, Auer-Rizzi, & Szabo, 2007). Ook wraak gevoelens worden vaak gerapporteerd na een vertrouwensschending (Haden & Hojjat, 2006). Verder resulteren vertrouwensbreuken veelal in een onmiddellijke daling in coöperatief gedrag (Bottom et al., 2002). Deze negatieve gevolgen benadrukken dat het van cruciaal belang is om een beter begrip te ontwikkelen van het vertrouwensherstelproces (Kramer & Lewicki, 2010). De centrale vraag die zich stelt is: Hoe kan gebroken vertrouwen terug hersteld worden?

Vertrouwensherstel

De vraag hoe geschonden vertrouwen terug hersteld kan worden is lang onderbelicht gebleven in de wetenschappelijke literatuur. Na afloop van een

vertrouwensbreuk kunnen overtreders allerlei verschillende strategieën hanteren met als doel het vertrouwen van het slachtoffer terug te winnen. Binnen de literatuur wordt er een centraal onderscheid gemaakt tussen verbale en non-verbale (materiële) vertrouwensherstelstrategieën.

Eerder onderzoek heeft zich vooral gericht op de effectiviteit van verbale herstelstrategieën, waar het aanbieden van verontschuldigingen, het ontkennen van betrokkenheid en het verzinnen van smoesjes enkele belangrijke voorbeelden van zijn. Een verscheidenheid aan studies heeft aangetoond dat het aanbieden van een oprechte verontschuldiging een effectieve strategie is om aangetast vertrouwen te herstellen (zie bijvoorbeeld Ohbuchi, Kameda, & Agarie, 1989; Schwartz, 1978; Tomlinson, Dineen, & Lewicki, 2004). Maar verontschuldigingen blijken niet altijd even effectief te zijn om gebroken vertrouwen te herstellen. Zo heeft ander onderzoek aangetoond dat verontschuldigingen vaak niet efficiënt en soms zelfs contraproductief zijn (zie Riordan, Marlin, & Kellogg, 1983; Schlenker, 1980; zie ook Sigal, Hsu, Foodim, & Betman; 1988). Er kan dan ook geconcludeerd worden dat voortgaand onderzoek naar de effectiviteit van verontschuldigingen heeft geleid tot tegenstrijdige resultaten.

Gezien verbale strategieën geen tastbaar element bevatten, hebben onderzoekers geopperd dat ze door slachtoffers als goedkoop kunnen worden ervaren (Bottom et al., 2002), en dit zal vooral het geval zijn wanneer de vertrouwensbreuk tot een financieel verlies voor het slachtoffer heeft geleid. In dergelijke situaties kan verwacht worden dat de overtreder actie moet ondernemen om de schade ongedaan te maken. Een financiële compensatie kan met andere woorden noodzakelijk zijn om gebroken vertrouwen terug te herstellen (Dirks, Kim, Ferrin, & Cooper, 2011).

Huidig doctoraatsonderzoek

In het vervolg van deze samenvatting worden de onderzoeksdoelen, de methoden en de resultaten van de huidige doctoraatstudies kort toegelicht.

Vertrouwensherstel: De effectiviteit van financiële compensaties

De meest prominente non-verbale vertrouwensherstelstrategie is het aanbieden van een financiële compensatie. Eerder onderzoek heeft aangetoond dat financiële compensaties effectief kunnen zijn om het vertrouwen van het slachtoffer in de overtreder te herstellen (zie Bottom et al., 2002; Desmet, De Cremer, & van Dijk, 2010, 2011). Echter, de meeste vorige compensatie studies onderzochten enkel de effectiviteit van compensaties die kleiner of gelijk zijn aan de schade die door het slachtoffer werd geleden. Er kan nochtans worden verondersteld dat succesvol vertrouwensherstel meer vraagt van de overtreder dan enkel en alleen het herstellen van de veroorzaakte schade. Met andere woorden, om vertrouwen volledig te herstellen tot het niveau van voor de vertrouwensbreuk zou het noodzakelijk kunnen zijn dat de overtreder het slachtoffer een compensatie aanbiedt die groter is dan de geleden schade. Dergelijke compensaties worden in de literatuur omschreven als overcompensatie. Omdat overcompensatie extra kosten inhoudt voor de aanbieder van de compensatie, rijst de vraag of dergelijke compensaties ook daadwerkelijk effectiever zijn om gebroken vertrouwen te herstellen dan compensaties die gelijk zijn aan de geleden schade.

Hoofdstuk 2

Het doel van Hoofdstuk 2 bestond erin een antwoord te zoeken op de volgende vraag: Is het voldoende voor een overtreder om de geleden schade exact terug te betalen of kunnen overcompensaties vertrouwen nog meer doen stijgen? In dit hoofdstuk werd er uitgegaan van de veronderstelling dat overcompensatie interessant is in termen van de “paradigmatische strijd” tussen economie en

psychologie. Vanuit een economisch perspectief leidt een overcompensatie tot de meest voordelige situatie voor het slachtoffer, terwijl vanuit een psychologisch perspectief overcompensatie oneerlijk is omdat het leidt tot ongelijkheid tussen slachtoffer en overtreder. De effectiviteit van overcompensatie werd onderzocht aan de hand van vier empirische studies. In lijn met een psychologisch perspectief op vertrouwen toonden de resultaten van onze studies aan dat overcompensatie geen positief effect heeft bovenop gelijke compensatie in termen van samenwerking en relatie behoud, en dat overcompensatie zelfs negatieve uitkomsten uitlokt in termen van gereduceerd vertrouwen en minder gunstige percepties van de overtreder. Onze bevindingen tonen dus aan dat de doeltreffendheid van een overcompensatie afhankelijk is van de uitkomstmaat. Overcompensatie is even effectief als gelijke compensatie voor meer beredeneerde uitkomstmaten (zoals samenwerking en relatie behoud), terwijl overcompensatie minder effectief is dan gelijke compensatie voor meer relationele uitkomstmaten (zoals vertrouwen en percepties). Deze bevindingen indiceren dan ook dat overcompensatie geen meerwaarde biedt, en zelfs averechts kan werken. Het doel van de volgende hoofdstukken was om deze interessante bevinding verder te onderzoeken.

Hoofdstuk 3

In Hoofdstuk 3 zijn we een stap verder gegaan door te onderzoeken of de effectiviteit van een overcompensatie afhangt van het perspectief van de persoon die de compensatie evalueert (ontvanger versus waarnemer). Belangrijk hierbij is om op te merken dat eerdere overcompensatie studies zich enkel hebben gericht op de ontvanger van de compensatie, zonder daarbij rekening te houden met de mogelijke positieve invloed die een overcompensatie kan hebben op niet-betrokken partijen die de compensatie observeren. Overtreders bieden hun slachtoffer vaak een overcompensatie aan, niet alleen om hun relatie met het slachtoffer te herstellen maar ook om reputatieschade te voorkomen en om het “algemene publiek” positief

te beïnvloeden. Daarom werd in dit hoofdstuk aan de hand van een lab experiment onderzocht of een overcompensatie ook daadwerkelijk als positief wordt gezien door de ogen van waarnemers. In lijn met de bevindingen van Hoofdstuk 2 bleek dat voor de ontvanger van de compensatie een overcompensatie leidt tot lagere niveaus van vertrouwen dan een gelijke compensatie. Voor waarnemers resulteren beide vormen van compensatie in een vergelijkbaar niveau van vertrouwen. De bevindingen van Hoofdstuk 3 tonen dus aan dat overcompensatie een kosten-ineffectieve herstelstrategie is, en dit zowel voor ontvangers van de compensatie als voor waarnemers.

Hoofdstuk 4

In Hoofdstuk 4 werd vervolgens onderzocht of het type overtreding een invloed heeft op het vertrouwensherstelproces. Vertrouwensbreuken kunnen vaak worden toegeschreven aan een gebrek aan competentie of een gebrek aan integriteit (zie Kim et al., 2004, 2006). Wanneer een overtreding kan worden toegeschreven aan een gebrek aan competentie vormt dit niet noodzakelijk een indicatie dat de overtreder een slecht persoon is. Iedereen kan namelijk lage prestatieniveaus tentoonspreiden onder ongunstige omstandigheden. Als zodanig kan verwacht worden dat het ongedaan maken van de schade door middel van een gelijke compensatie voldoende zal zijn om het vertrouwen terug te herstellen na afloop van een competentiefout. Echter, als een overtreding kan worden toegeschreven aan een gebrek aan integriteit dan signaleert dit wel dat de overtreder een slecht persoon is omdat enkel mensen die tekortschieten op bepaalde morele waarden oneerlijk gedrag zullen vertonen. We verwachtten dan ook dat in de nasleep van een integriteitsovertreding een overcompensatie noodzakelijk zal zijn om vertrouwen terug te herstellen. Uit de resultaten van twee studies blijkt dat gelijke compensatie en overcompensatie beiden effectief zijn om vertrouwen te herstellen na afloop van een competentiefout. In het geval van een integriteitsovertreding blijken zowel

gelijke compensatie als overcompensatie niet in staat om vertrouwen te herstellen. Bovendien had voor beide soorten overtredingen overcompensatie geen positief effect bovenop het effect van gelijke compensatie.

De resultaten van Hoofdstukken 3 en 4 verschaffen aanvullend bewijs voor de vaststelling dat overcompensatie niet superieur is aan gelijke compensatie – en deze bevinding geldt ook voor waarnemers en in geval van ernstige overtredingen in termen van integriteitsschendingen. Nochtans zijn er een aantal onderzoekers die wel positieve effecten van overcompensaties hebben gerapporteerd (zie bijvoorbeeld Boshoff, 1997; Gilly & Hansen, 1985; Hocutt, Bowers, & Donavan, 2006). Een nadere kijk op deze studies toont echter aan dat de positieve effecten van overcompensatie voornamelijk werden verworven met relatief kleine overcompensaties, terwijl in de voorafgaande hoofdstukken van dit proefschrift consequent werd gekeken naar de effectiviteit van redelijk grote overcompensaties (die meestal op zijn minst twee keer zo groot waren als de toegebrachte schade).

Hoofdstuk 5

In Hoofdstuk 5 werd daarom onderzocht hoe de grootte van een overcompensatie de doeltreffendheid ervan beïnvloed. We voorspelden dat mensen positief zullen reageren op kleine overcompensaties omdat dergelijke compensaties welwillendheid signaleren door extra kosten te compenseren. Verwacht wordt echter dat vanaf een bepaald punt extra overcompensatie zal leiden tot een daling in vertrouwen omdat grote afwijkingen van gelijkheid als onaangenaam en oneerlijk worden ervaren (zie Loewenstein, Thompson, & Bazerman, 1989). Deze voorspellingen werden onderzocht in interacties tussen klanten en bedrijven door het uitvoeren van vier studies waarin we ons richten op loyaliteit als uitkomstmaat. Het gebruik van financiële compensaties komt vaak voor in dergelijke interacties, want voor de meeste bedrijven zijn occasionele productdefecten bijna onvermijdelijk, waardoor pogingen om dergelijke fouten te herstellen uiterst relevant zijn. Ook hier

kunnen bedrijven ervoor kiezen om ontevreden klanten meer te compenseren dan nodig om de schade ongedaan te maken met als doel hun vertrouwen en loyaliteit verder te vergroten. In lijn met onze voorspellingen blijkt dat milde vormen van overcompensatie inderdaad zorgen voor een stijging in loyaliteit ten opzichte van gelijke compensatie. Echter, zodra een bepaalde drempelwaarde overschreven werd begon de effectiviteit van overcompensatie af te nemen, wat aansluit bij onze eerdere bevindingen dat grote overcompensaties niet goed worden ontvangen. Verder toont dit hoofdstuk ook aan dat er robuste individuele verschillen zijn in de manier waarop mensen reageren op overcompensaties.

Hoofdstuk 6

In Hoofdstuk 6 werd vervolgens de effectiviteit van overcompensatie als een reclamestrategie onderzocht. De belofte om klanten meer dan het prijsverschil te betalen indien een andere winkel precies hetzelfde product verkoopt voor een lagere prijs is een veelgebruikte reclamestrategie. In een eerste studie onderzochten we of marketeers en winkeliers denken dat het overcompenseren van prijsverschillen een effectieve strategie is. Deze studie toont aan dat de meerderheid van de marketeers en winkeliers in onze steekproef dacht dat het overcompenseren van een prijsverschil inderdaad effectiever is dan het exact compenseren van een prijsverschil. Echter, uit de vier daaropvolgende studies bleek dat overcompensatie niet effectiever is dan gelijke compensatie om nieuwe klanten aan te trekken en bestaande klanten te behouden. Onze resultaten toonden verder aan dat deze bevindingen kunnen worden toegeschreven aan de lagere gepercipieerde eerlijkheid van overcompensaties. Ondanks dat het overcompenseren van prijsverschillen extra kosten inhoud, lijkt het exact compenseren van prijsverschillen dus even effectief te zijn.

Hoofdstukken 5 en 6 tonen aan dat wanneer de aanbieder van een compensatie een bedrijf is (in plaats van een andere persoon) overcompensatie

eveneens niet leidt tot meer positieve resultaten dan gelijke compensatie. Concluderend kan dan ook gesteld worden dat overcompensaties niet enkel kosten-ineffectief zijn in interpersoonlijke relaties, maar ook in zakelijke relaties tussen bedrijven en klanten.

Vertrouwensherstel: De effectiviteit van verontschuldigingen

In de volgende twee hoofdstukken werd de focus verlegd naar het onderzoeken van de effectiviteit van non-materiële vertrouwensherstelstrategieën, want een vertrouwensbreuk houdt vaak ook een schending in van allerlei relationele verwachtingen. Dit suggereert dat vertrouwensherstel in een financiële context mogelijk ook kan worden bereikt door middel van verbale vertrouwensherstelstrategieën. Een prominent voorbeeld van een verbale herstelstrategie is het aanbieden van verontschuldigingen (Lazare, 2004; Kim, Dirks, & Cooper, 2009). Verontschuldigen komen tegemoet aan de relationele behoeften van het slachtoffer omdat ze de waardigheid van het slachtoffer herstellen alsook respect signaleren voor het slachtoffer (Barclay & Skarlicki, 2008; Scher & Darley, 1997).

Hoofdstuk 7

In Hoofdstuk 7 werd vertrokken vanuit de constatering dat hoewel uit eerder onderzoek is gebleken dat financiële compensaties en verontschuldigingen effectief zijn om gebroken vertrouwen te herstellen, onderzoek tot op heden heeft nagelaten om het simultane effect van beide strategieën te bestuderen. Daarom werd in twee empirische studies het gecombineerde effect van financiële compensaties en verontschuldigingen onderzocht op vertrouwensherstel. Meer specifiek werd hier nagegaan of in de nasleep van een financiële vertrouwensbreuk een verontschuldiging nog een toegevoegde waarde biedt bovenop de impact van een financiële compensatie. Uit de resultaten van deze studies blijk dat

verontschuldigingen een additionele positief effect hebben op vertrouwensherstel wanneer de verstrekte compensatie te laag is om de schade ongedaan te maken; dus in het geval van een zogenaamde ondercompensatie. Dit resultaat sluit aan bij eerder onderzoek dat het belang van relationele motieven benadrukt voor het vertrouwensherstelproces (zie Bottom et al., 2002; Kim et al., 2009).

Hoofdstuk 8

In Hoofdstuk 8 werd de focus verlegd naar het onderzoeken van de effectiviteit van verontschuldigingen in relaties op het werk. Op bijna dagelijkse basis moeten leidinggevenden beslissingen nemen die hun ondergeschikten kunnen schaden in het geval van een foutieve beslissing. Echter, geen eerdere studies onderzochten hoe de timing van een foutieve beslissing invloed heeft op de effectiviteit van verontschuldigingen als vertrouwensherstelstrategie. In vijf studies onderzochten we hoe een negatieve beslissingsuitkomst gegenereerd door een leidinggevenden op een haastige, tijdige of vertraagde manier van invloed is op het vertrouwensherstelproces. Uit de resultaten van onze studies blijkt dat bij ondergeschikten de noodzaak aan een verontschuldiging het hoogst was wanneer een foutieve beslissing werd uitgesteld door een leidinggevende, terwijl verontschuldigingen net het minste effectief waren in de context van uitgestelde beslissingen. Dit hoofdstuk toont dan ook aan dat vertrouwensschendingen vooral moeilijk te herstellen zijn wanneer leidinggevenden uitstelgedrag vertonen.

Een neurowettenschappelijke kijk op vertrouwensherstel

In de voorgaande empirische hoofdstukken van dit proefschrift werd het vertrouwensherstelproces onderzocht met behulp van gedragsmethoden. In dit laatste empirische hoofdstuk werd er gebruik gemaakt van een neuropsychologische aanpak. Een toenemend aantal onderzoekers is gestart met het verkennen van de neurobiologie van vertrouwen. Opmerkelijk is echter dat deze studies uitsluitend

gericht zijn op het in kaart brengen van de neurale substraten die geassocieerd zijn met vertrouwen en wantrouwen, terwijl de neurale mechanismen die gerelateerd zijn met vertrouwensherstel nog niet empirisch zijn onderzocht. Het gebruik van beeldvormende technieken zoals fMRI (functionele kernspintomografie) vormt dan ook een belangrijke aanvulling op het gedragsonderzoek naar vertrouwensherstel.

Hoofdstuk 9

In Hoofdstuk 9 werden de neurale correlaten van vertrouwensherstel onderzocht met behulp van een fMRI studie. Het uitgangspunt van dit onderzoek was de constatering dat hoewel de eerdere studies van dit doctoraat hebben aangetoond dat een gelijke compensatie het meest (kosten)effectief is om vertrouwen te herstellen, het nog steeds onduidelijk is waarom dergelijke compensaties nu precies zo effectief zijn. De resultaten van dit hoofdstuk tonen aan dat het ontvangen van een gelijke compensatie leidt tot de activatie van hersengebieden die gerelateerd zijn aan vergeving en sociale beloning. Aanvullende analyses tonen aan dat activatie in vergeving gerelateerde gebieden de relatie tussen compensatie en vertrouwensherstel medieert. Op basis van deze bevindingen kan dan ook geconcludeerd worden dat vergeving een noodzakelijke stap is voor het effectief herstel van vertrouwen.

Algemene discussie

In deze algemene discussie worden kort de resultaten van het huidige doctoraatsonderzoek bediscussieerd. In de empirische hoofdstukken van dit proefschrift werd (met uitzondering van Hoofdstuk 8) de effectiviteit van een vertrouwensherstelstrategie onderzocht die veelvuldig wordt toegepast in de praktijk, maar nog weinig is onderzocht in de wetenschappelijke literatuur. Eerder onderzoek naar vertrouwensherstel heeft zich namelijk bijna uitsluitend gericht op het onderzoeken van de effectiviteit van verbale vertrouwensherstelstrategieën (zie

Kim et al., 2004, 2006; Tomlinson et al., 2004; Schweitzer et al., 2006). Hoewel we erkennen dat dergelijke strategieën effectief kunnen zijn om vertrouwen te herstellen, veroorzaken vertrouwensbreuken ook vaak financiële schade voor het slachtoffer. Onder dergelijke omstandigheden zijn verbale reacties mogelijk onvoldoende om vertrouwen te herstellen, dit omdat de materiële schade ook moet worden aangepakt (Bottom et al., 2002). Een non-verbale herstelstrategie die door overtreders kan worden toegepast, is het betalen van een financiële compensatie. Ondanks dat financiële compensaties vaak worden gebruikt door overtreders is er nog maar weinig bekend over de factoren die de doeltreffendheid ervan beïnvloeden.

In de eerste vijf empirische hoofdstukken van dit proefschrift hebben we ons expliciet gericht op het onderzoeken van de effectiviteit van financiële overcompensaties. De kritische vraag die we poogden te beantwoorden met ons onderzoek was of kostelijke overcompensatie gunstige effecten heeft bovenop minder kostelijke gelijke compensatie. Uit Hoofdstukken 2 tot en met 6 is echter gebleken dat (grote) overcompensatie niet superieur is aan gelijke compensatie, wat gedeeltelijk kan worden toegeschreven aan de lagere gepercipeerde eerlijkheid van overcompensatie. Belangrijk is dat de constatering dat overcompensatie niet superieur is aan gelijke compensatie van toepassing is op verschillende uitkomstmaten (meer beredeneerde en meer relationele uitkomstmaten; Hoofdstuk 2), perspectieven (ontvangers en waarnemers van de compensatie; Hoofdstuk 3), en soorten overtredingen (competentiefouten en integriteitsschendingen; Hoofdstuk 4). Soortgelijke bevindingen werden gerapporteerd voor de effectiviteit van overcompensatie als compensatiebeleid en als reclamestrategie in relaties tussen klanten en bedrijven (Hoofdstukken 5 en 6). In het licht van deze bevindingen stelt het huidige proefschrift dan ook vraagtekens bij de populaire assumptie dat meer geld ook automatisch beter is. Vanuit een praktisch oogpunt kan op basis van de resultaten van dit proefschrift het advies worden geformuleerd om de omvang van

compensaties best te beperken tot het louter herstellen van de schade (en eventueel een klein beetje extra).

Het ontbreken van positieve overcompensatie effecten toont aan dat niet enkel financiële motieven het proces van vertrouwensherstel aandrijven. Anders gezegd, de financiële waarde van een compensatie is slechts één aspect van hoe mensen reageren op schadeherstel. Dit is ook in overeenstemming met de resultaten van Hoofdstukken 7 en 8. Uit deze hoofdstukken blijkt namelijk dat zelfs in het geval van een puur financiële schade, een verontschuldiging ervoor kan zorgen dat vertrouwen toeneemt, en dit zelfs boven het niveau dat wordt bereikt met een financiële compensatie. Daarnaast toont de fMRI studie die werd uitgevoerd in Hoofdstuk 9 aan dat een financiële compensatie leidt tot de activatie van hersengebieden die gerelateerd zijn met vergeving en sociale beloningservaringen. Deze activeringen werden zelfs gevonden na correctie voor het ontvangen van geld op zich, wat aangeeft dat vertrouwensherstel door middel van een financiële vergoeding ook als sociaal prettig ervaren wordt. De bevindingen van deze laatste hoofdstukken bieden dan ook verdere evidentie voor de vaststelling dat niet alleen geld van belang is. Huidig proefschrift benadrukt dus dat er naast financiële motieven ook allerlei andere overwegingen zijn waarmee rekening moet worden gehouden bij het onderzoek naar vertrouwensherstel.

Conclusie

De psychologische literatuur werd voor lange tijd gedomineerd door een nogal negatieve en pessimistische visie op de mogelijkheid tot vertrouwensherstel. In het huidige doctoraatsonderzoek werd uitgegaan van een meer positieve kijk die inhoudt dat onder bepaalde omstandigheden gebroken vertrouwen wel degelijk kan worden hersteld. We combineerden gedragsmethoden met hersenonderzoek. Dit heeft ons in staat gesteld om het proces van vertrouwensherstel in meer detail te

onderzoeken. Als zodanig draagt dit proefschrift belangrijke nieuwe inzichten bij aan het complexe en fascinerende onderzoeksgebied van vertrouwensherstel.

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Appendix

Data Storage Fact Sheets

In this Appendix, a data storage fact sheet for each empirical chapter of the dissertation is included.

Data Storage Fact Sheet Chapter 2

% Data Storage Fact Sheet Chapter 2 (Studies 1-4)

% Name/identifier study: What Money Can't Buy: The Psychology of Financial Overcompensation
% Author: Tessa Haesevoets
% Date: 12/09/2014

1. Contact details
==========

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2. Information about the datasets to which this sheet applies

==========

* Reference of the publication in which the datasets are reported: Haesevoets, T., Van Hiel, A., Reinders Folmer, C., & De Cremer, D. (2014). What money can't buy: The psychology of financial overcompensation. Journal of Economic Psychology, 42, 83-95.

* Which datasets in that publication does this sheet apply to?: Study 1, Study 2, Study 3, and Study 4

3. Information about the files that have been stored

==========

3a. Raw data

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* Have the raw data been stored by the main researcher? [X] YES / [ ] NO
If NO, please justify:

* On which platform are the raw data stored?

- [X] researcher PC
- [X] research group file server
- [ ] other (specify): ...

* Who has direct access to the raw data (i.e., without intervention of another person)?
- [X] main researcher
- [X] responsible ZAP
- [X] all members of the research group
- [ ] all members of UGent
- [ ] other (specify): ...

3b. Other files

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* Which other files have been stored?
- [X] file(s) describing the transition from raw data to reported results. Specify: SPSS syntaxt files
- [X] file(s) containing processed data. Specify: SPSS data files (with recoded data)
- [X] file(s) containing analyses. Specify: SPSS output files
- [ ] files(s) containing information about informed consent. Specify: ...
- [ ] a file specifying legal and ethical provisions. Specify: ...
- [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
- [ ] other files. Specify: ...

* On which platform are these other files stored?
  - [X] individual PC
  - [X] research group file server
  - [ ] other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?
  - [X] main researcher
  - [X] responsible ZAP
  - [X] all members of the research group
  - [ ] all members of UGent
  - [ ] other (specify): ...

4. Reproduction
==========
* Have the results been reproduced independently?: [ ] YES / [X] NO

* If yes, by whom (add if multiple):
  - name:
  - address:
  - affiliation:
  - e-mail:

Data Storage Fact Sheet Chapter 3

% Data Storage Fact Sheet Chapter 3 (Study 1 – this chapter consists of only one study)

% Name/identifier study: More Money, More Trust? Target and Observer Differences in the Effectiveness of Financial Overcompensation to Restore Trust
% Author: Tessa Haesevoets
% Date: 12/09/2014

1. Contact details
==========

1a. Main researcher

- name: Tessa Haesevoets
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: tessa.haesevoets@ugent.be

1b. Responsible Staff Member (ZAP)

- name: Alain Van Hiel
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: alain.vanhiel@ugent.be

If a response is not received when using the above contact details, please send an email to data-ppw@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

==========

* Reference of the publication in which the datasets are reported: Haesevoets, T., Reinders Folmer, C., & Van Hiel, A. (2014). More money, more trust? Target and observer differences in the effectiveness of financial overcompensation to restore trust. Psychologica Belgica, 54, 389-394.

* Which datasets in that publication does this sheet apply to?: Study 1

3. Information about the files that have been stored

==========

3a. Raw data

---

* Have the raw data been stored by the main researcher? [X] YES / [ ] NO
If NO, please justify:

* On which platform are the raw data stored?
- [X] researcher PC

- [X] research group file server
- [ ] other (specify): ...

* Who has direct access to the raw data (i.e., without intervention of another person)?
- [X] main researcher
- [X] responsible ZAP
- [X] all members of the research group
- [ ] all members of UGent
- [ ] other (specify): ...

3b. Other files

---

* Which other files have been stored?
- [X] file(s) describing the transition from raw data to reported results. Specify: SPSS syntaxt file
- [X] file(s) containing processed data. Specify: SPSS data file (with recoded data)
- [X] file(s) containing analyses. Specify: SPSS output file
- [ ] files(s) containing information about informed consent. Specify: ...
- [ ] a file specifying legal and ethical provisions. Specify: ...
- [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
- [ ] other files. Specify: ...

* On which platform are these other files stored?
  - [X] individual PC
  - [X] research group file server
  - [ ] other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?
  - [X] main researcher
  - [X] responsible ZAP
  - [X] all members of the research group
  - [ ] all members of UGent
  - [ ] other (specify): ...

4. Reproduction
==========
* Have the results been reproduced independently?: [ ] YES / [X] NO

* If yes, by whom (add if multiple):
  - name:
  - address:
  - affiliation:
  - e-mail:

Data Storage Fact Sheet Chapter 4

% Data Storage Fact Sheet Chapter 4 (Studies 1-2)

% Name/identifier study: Is Trust for Sale? The Effectiveness of Financial Compensation for Repairing Competence- versus Integrity-Based Trust Violations
% Author: Tessa Haesevoets
% Date: 16/12/2015

1. Contact details
==========

1a. Main researcher

- name: Tessa Haesevoets
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: tessa.haesevoets@ugent.be

1b. Responsible Staff Member (ZAP)

- name: Alain Van Hiel
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: alain.vanhiel@ugent.be

If a response is not received when using the above contact details, please send an email to data-ppw@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

==========

* Reference of the publication in which the datasets are reported: Haesevoets, T., Reinders Folmer, C., & Van Hiel, A. (2015). Is Trust for Sale? The Effectiveness of Financial Compensation for Repairing Competence- versus Integrity-Based Trust Violations. PLoS ONE, 10(12), e0145952.

* Which datasets in that publication does this sheet apply to?: Study 1 and Study 2

3. Information about the files that have been stored

==========

3a. Raw data

---

* Have the raw data been stored by the main researcher? [X] YES / [ ] NO
If NO, please justify:

* On which platform are the raw data stored?
- [X] researcher PC
- [X] research group file server

- [ ] other (specify): ...

* Who has direct access to the raw data (i.e., without intervention of another person)?
- [X] main researcher
- [X] responsible ZAP
- [X] all members of the research group
- [ ] all members of UGent
- [ ] other (specify): ...

3b. Other files

---

* Which other files have been stored?
- [X] file(s) describing the transition from raw data to reported results. Specify: SPSS syntaxt files
- [X] file(s) containing processed data. Specify: SPSS data files (with recoded data)
- [X] file(s) containing analyses. Specify: SPSS output files
- [ ] files(s) containing information about informed consent. Specify: ...
- [ ] a file specifying legal and ethical provisions. Specify: ...
- [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
- [ ] other files. Specify:

* On which platform are these other files stored?

- [X] individual PC
- [X] research group file server
- [ ] other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?
- [X] main researcher
- [X] responsible ZAP
- [X] all members of the research group
- [ ] all members of UGent
- [ ] other (specify): ...

4. Reproduction

==========

* Have the results been reproduced independently?: [ ] YES / [X] NO

* If yes, by whom (add if multiple):
- name:
- address:
- affiliation:
- e-mail:

Data Storage Fact Sheet Chapter 5

% Data Storage Fact Sheet Chapter 5 (Studies 1-4)

% Name/identifier study: How Much Compensation is Too Much? An Investigation of the Effectiveness of Financial Overcompensation as a Means to Enhance Customer Loyalty
% Author: Tessa Haesevoets
% Date: 03/01/2017

1. Contact details
==========

1a. Main researcher

- name: Tessa Haesevoets
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: tessa.haesevoets@ugent.be

1b. Responsible Staff Member (ZAP)

- name: Alain Van Hiel
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: alain.vanhiel@ugent.be

If a response is not received when using the above contact details, please send an email to data-ppw@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

==========

* Reference of the publication in which the datasets are reported: Haesevoets, T., Van Hiel, A., Pandelaere M., Bostyn, D., & De Cremer, D. (in press). How much compensation is too much? An investigation of the effectiveness of financial overcompensation as a means to enhance customer loyalty. Judgment and Decision Making.

* Which datasets in that publication does this sheet apply to?: Study 1, Study 2, Study 3, and Study 4

3. Information about the files that have been stored

==========

3a. Raw data

---

* Have the raw data been stored by the main researcher? [X] YES / [ ] NO
If NO, please justify:

* On which platform are the raw data stored?
 - [X] researcher PC
 - [X] research group file server
 - [ ] other (specify): ...

* Who has direct access to the raw data (i.e., without intervention of another person)?
 - [X] main researcher
 - [X] responsible ZAP
 - [X] all members of the research group
 - [ ] all members of UGent
 - [ ] other (specify): ...

3b. Other files

---

* Which other files have been stored?
 - [ ] file(s) describing the transition from raw data to reported results. Specify: ...
 - [X] file(s) containing processed data. Specify: Data files (with recoded data)
 - [ ] file(s) containing analyses.
 - [ ] files(s) containing information about informed consent. Specify: ...
 - [ ] a file specifying legal and ethical provisions. Specify: ...
 - [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
 - [ ] other files. Specify:

* On which platform are these other files stored?
  - [X] individual PC
  - [X] research group file server
  - [ ] other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?
  - [X] main researcher
  - [X] responsible ZAP
  - [X] all members of the research group
  - [ ] all members of UGent
  - [ ] other (specify): ...

4. Reproduction

==========

* Have the results been reproduced independently?: [ ] YES / [X] NO
(Note that the data analyses for Studies 2, 3 and 4 have been conducted by one of the co-authors; Bostyn D. (Study 2) & Pandelaere M. (Studies 3 and 4))

* If yes, by whom (add if multiple):
  - name:
  - address:
  - affiliation:
  - e-mail:

Data Storage Fact Sheet Chapter 6

% Data Storage Fact Sheet Chapter 6 (Studies 1-3)

% Name/identifier study: Low-Price Guarantees as Advertisement Strategy and Compensation Policy: The More, the Better?
% Author: Tessa Haesevoets
% Date: 03/01/2017

1. Contact details
==========

1a. Main researcher

- name: Tessa Haesevoets
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: tessa.haesevoets@ugent.be

1b. Responsible Staff Member (ZAP)

- name: Alain Van Hiel
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: alain.vanhiel@ugent.be

If a response is not received when using the above contact details, please send an email to data-ppw@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

==========

* Reference of the publication in which the datasets are reported: Haesevoets, T., Van Hiel, A., Onraet, E., Joosten, A., & De Cremer, D. (in press). Low-price guarantees as advertisement strategy and compensation policy: The more, the better? Journal of Consumer Behaviour.

* Which datasets in that publication does this sheet apply to?: Study 1, Study 2a, Study 2b, Study 3a, and Study 3b

3. Information about the files that have been stored

==========

3a. Raw data

---

* Have the raw data been stored by the main researcher? [X] YES / [ ] NO
If NO, please justify:

* On which platform are the raw data stored?

- [X] researcher PC
- [X] research group file server
- [ ] other (specify): ...

* Who has direct access to the raw data (i.e., without intervention of another person)?
- [X] main researcher
- [X] responsible ZAP
- [X] all members of the research group
- [ ] all members of UGent
- [ ] other (specify): ...

3b. Other files

---

* Which other files have been stored?
- [X] file(s) describing the transition from raw data to reported results. Specify: SPSS syntaxt files
- [X] file(s) containing processed data. Specify: SPSS data file (with recoded data)
- [X] file(s) containing analyses. Specify: SPSS output files
- [ ] files(s) containing information about informed consent. Specify: ...
- [ ] a file specifying legal and ethical provisions. Specify: ...
- [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
- [ ] other files. Specify:

* On which platform are these other files stored?
  - [X] individual PC
  - [X] research group file server
  - [ ] other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?
  - [X] main researcher
  - [X] responsible ZAP
  - [X] all members of the research group
  - [ ] all members of UGent
  - [ ] other (specify): ...

4. Reproduction
==========
* Have the results been reproduced independently?: [ ] YES / [X] NO

* If yes, by whom (add if multiple):
  - name:
  - address:
  - affiliation:
  - e-mail:

Data Storage Fact Sheet Chapter 7

% Data Storage Fact Sheet Chapter 7 (Studies 1-2)

% Name/identifier study: Money isn't all that Matters: The use of Financial Compensation and Apologies to Preserve Relationships in the Aftermath of Distributive Harm
% Author: Tessa Haesevoets
% Date: 05/05/2014

1. Contact details
==========

1a. Main researcher

- name: Tessa Haesevoets
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: tessa.haesevoets@ugent.be

1b. Responsible Staff Member (ZAP)

- name: Alain Van Hiel
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: alain.vanhiel@ugent.be

If a response is not received when using the above contact details, please send an email to data-ppw@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

==========

* Reference of the publication in which the datasets are reported: Haesevoets, T., Reinders Folmer, C., De Cremer, D., & Van Hiel, A. (2013). Money isn't all that matters: The use of financial compensation and apologies to preserve relationships in the aftermath of distributive harm. Journal of Economic Psychology, 35, 95-107.

* Which datasets in that publication does this sheet apply to?: Study 1 and Study 2

3. Information about the files that have been stored

==========

3a. Raw data

---

* Have the raw data been stored by the main researcher? [X] YES / [ ] NO
If NO, please justify:

* On which platform are the raw data stored?
- [X] researcher PC

- [X] research group file server
- [ ] other (specify): ...

* Who has direct access to the raw data (i.e., without intervention of another person)?
- [X] main researcher
- [X] responsible ZAP
- [X] all members of the research group
- [ ] all members of UGent
- [ ] other (specify): ...

3b. Other files

---

* Which other files have been stored?
- [X] file(s) describing the transition from raw data to reported results. Specify: SPSS syntaxt files
- [X] file(s) containing processed data. Specify: SPSS data files (with recoded data)
- [X] file(s) containing analyses. Specify: SPSS output files
- [ ] files(s) containing information about informed consent. Specify: ...
- [ ] a file specifying legal and ethical provisions. Specify: ...
- [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
- [ ] other files. Specify: ...

* On which platform are these other files stored?
  - [X] individual PC
  - [X] research group file server
  - [ ] other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?
  - [X] main researcher
  - [X] responsible ZAP
  - [X] all members of the research group
  - [ ] all members of UGent
  - [ ] other (specify): ...

4. Reproduction

==========

* Have the results been reproduced independently?: [ ] YES / [X] NO

* If yes, by whom (add if multiple):
  - name:
  - address:
  - affiliation:
  - e-mail:

Data Storage Fact Sheet Chapter 8

% Data Storage Fact Sheet Chapter 8 (Studies 1-5)

% Name/identifier study: The Impact of Decision Timing on the Effectiveness of Leaders' Apologies to Repair Followers' Trust in the Aftermath of Leader Failure
% Author: Tessa Haesevoets
% Date: 16/12/2015

1. Contact details

==========

1a. Main researcher

- name: Tessa Haesevoets
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: tessa.haesevoets@ugent.be

1b. Responsible Staff Member (ZAP)

- name: Alain Van Hiel
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: alain.vanhiel@ugent.be

If a response is not received when using the above contact details, please send an email to data-ppw@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

==========

* Reference of the publication in which the datasets are reported: Haesevoets, T., Joosten, A., Reinders Folmer, C., Lerner, L., De Cremer, D., & Van Hiel, A. (2016). The impact of decision timing on the effectiveness of leaders' apologies to repair followers' trust in the aftermath of leader failure. Journal of Business and Psychology, 31, 533-551.

* Which datasets in that publication does this sheet apply to?: Study 1, Study 2, Study 3, Study 4, and Study 5

3. Information about the files that have been stored

==========

3a. Raw data

---

* Have the raw data been stored by the main researcher? [X] YES / [ ] NO
If NO, please justify:

* On which platform are the raw data stored?
 - [X] researcher PC
 - [X] research group file server
 - [ ] other (specify): ...

* Who has direct access to the raw data (i.e., without intervention of another person)?
 - [X] main researcher
 - [X] responsible ZAP
 - [X] all members of the research group
 - [ ] all members of UGent
 - [ ] other (specify): ...

3b. Other files

---

* Which other files have been stored?
 - [X] file(s) describing the transition from raw data to reported results. Specify: SPSS syntaxt files
 - [X] file(s) containing processed data. Specify: SPSS data file (with recoded data)
 - [X] file(s) containing analyses. Specify: SPSS output files
 - [ ] files(s) containing information about informed consent. Specify: ...
 - [ ] a file specifying legal and ethical provisions. Specify: ...
 - [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
 - [ ] other files. Specify:

* On which platform are these other files stored?
  - [X] individual PC
  - [X] research group file server
  - [ ] other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?
  - [X] main researcher
  - [X] responsible ZAP
  - [X] all members of the research group
  - [ ] all members of UGent
  - [ ] other (specify): ...

4. Reproduction
==========
* Have the results been reproduced independently?: [ ] YES / [X] NO

* If yes, by whom (add if multiple):
  - name:
  - address:
  - affiliation:
  - e-mail:

Data Storage Fact Sheet Chapter 9

% Data Storage Fact Sheet Chapter 9 (Study 1 - this chapter consists of only one study)

% Name/identifier study: Understanding the Effects of Financial Compensation on the Repair of Interpersonal Trust: Evidence from fMRI in Favor of Forgiveness and Social Reward
% Author: Tessa Haesevoets
% Date: 03/01/2017

1. Contact details
==========

1a. Main researcher

- name: Tessa Haesevoets
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: tessa.haesevoets@ugent.be

1b. Responsible Staff Member (ZAP)

- name: Alain Van Hiel
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: alain.vanhiel@ugent.be

If a response is not received when using the above contact details, please send an email to data-ppw@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

==========

* Reference of the publication in which the datasets are reported: Haesevoets, T., De Cremer, D., Van Hiel, A., & Van Overwalle, F. Understanding the effects of financial compensation on the repair of interpersonal trust: Evidence from fMRI in favor of forgiveness and social reward. Manuscipt under revision.

* Which datasets in that publication does this sheet apply to?: Study 1 (fmri data)

3. Information about the files that have been stored

==========

3a. Raw data

---

* Have the raw data been stored by the main researcher? [X] YES / [ ] NO
If NO, please justify:

* On which platform are the raw data stored?

- [X] researcher PC
- [ ] research group file server
- [X] other (specify): PC of co-author (Van Overwalle F.) and external hard drive

* Who has direct access to the raw data (i.e., without intervention of another person)?
- [X] main researcher
- [X] responsible ZAP
- [ ] all members of the research group
- [ ] all members of UGent
- [X] other (specify): co-author (Van Overwalle F.)

3b. Other files

---

* Which other files have been stored?
- [ ] file(s) describing the transition from raw data to reported results. Specify: ...
- [X] file(s) containing processed data. Specify: Processed fmri data
- [ ] file(s) containing analyses. Specify: ...
- [ ] files(s) containing information about informed consent. Specify: ...
- [ ] a file specifying legal and ethical provisions. Specify: ...
- [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
- [ ] other files. Specify:

* On which platform are these other files stored?
  - [X] individual PC
  - [ ] research group file server
  - [X] other: PC of co-author (Van Overwalle F.)

* Who has direct access to these other files (i.e., without intervention of another person)?
  - [X] main researcher
  - [X] responsible ZAP
  - [ ] all members of the research group
  - [ ] all members of UGent
  - [X] other (specify): co-author (Van Overwalle F.)

4. Reproduction

==========

* Have the results been reproduced independently?: [ ] YES / [X] NO
(Note that the data analyses for this fmri Study have been conducted in close collaboration with one of the co-authors; Van Overwalle F.)

* If yes, by whom (add if multiple):
  - name:
  - address:
  - affiliation:
  - e-mail: